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PRIMUX™ Series

PRIMUX CAT5 KVM System Installation and Operation Manual



(Host Adapter sold separately)

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TABLE OF CONTENTS

INTRODUCTION.....	1
Materials	1
FEATURES AND FUNCTIONS.....	2
PREPARATION FOR INSTALLATION	3
Definitions	3
INSTALLATION.....	4
The Host Adapter.....	4
Installation of a PS/2 CPU	4
Installation of a USB CPU.....	5
Installation of a SUN CPU	5
Connecting the CAT5 cable to the Host Adapter.....	6
The User Station.....	6
Installation with PS/2 devices	6
Installation with USB devices.....	7
Connecting the CAT5 cable to the User Station.....	8
Power Up for the first time	8
Daisy-Chained Host Adapters	9
Adding a Host Adapter to a segment.....	9
USING THE PRIMUX CAT5 KVM SWITCH	10
Hot Plugging	10
Initial Startup	10
User Rights vs. Administrator Rights.....	10
Administrator Login and Password	11
Setup Host Adapter(s)	11
Quick Connect	11
Change the Default Administrator Password.....	11
Standards of Operation.....	12
Keypad Control	12
Security	12
Administrator Login	13
Autologin	13
User Login.....	13
User Access Functions.....	13
Command Mode	13
Scan Mode.....	15
Normal Mode	15
Settings Menu	16
Find Host Adapter.....	17
Host Adapter Info screen	17
Help Pages	18
OSD Settings Menu	18
Host Adapters for Scan.....	19
Change Scan Dwell Time	20
Video Quality Adjustment	20
Administration	21
Administration Menu	21
Edit Hosts, Users, and User Station Info	22
Host Adapter List	22
Edit Host Adapter.....	23
User List.....	24
User Info	25
Edit User	25
Add New User.....	26
Edit User Password	27
Host Access List	27
Change Administrator's Password.....	28
Edit User Station	28
Select Autologon User	29

User Station Info screen	30
Idle Timeout	30
Alternate OSD Key	31
Update Firmware/Bootloader Menu.....	32
Acquire/Send DDC Info	33
Configure MAC Host Adapters	33
Select Keyboard Language	34
TECHNICAL SPECIFICATIONS.....	35
INTERCONNECTION CABLE WIRING METHOD	35
NULL MODEM CABLE PINOUTS	36
MENU QUICK-FIND KEYSTROKE TABLE	37
SAFETY and EMC Regulatory Statements.....	37
WARRANTY INFORMATION.....	38

TABLE OF FIGURES

Figure 1- Typical Application.....	3
Figure 2- Connect a HA-PS2 Host Adapter to a PS/2 CPU	4
Figure 3- Connect a HA-USB Host Adapter to a USB CPU	5
Figure 4- Connect a HA-SUN Host Adapter to a SUN CPU.....	5
Figure 5- Connect CAT5 cable to Host Adapter.....	6
Figure 6- Connect the Extended PS/2 components to the User Station	7
Figure 7- Connect extended USB components to the User Station	7
Figure 8- Connect CAT5 cable to User Station.....	8
Figure 9- Connect the AC adapter to the User Station.....	8
Figure 10- Daisy-chained Host Adapters	9
Figure 11- PRIMUX-UZR front panel	12
Figure 12- Login splash screen.....	13
Figure 13- Command Mode main menu	14
Figure 14- Settings menu.....	16
Figure 15- Find Host Adapter screen	17
Figure 16- Host Adapter Info screen.....	17
Figure 17- Help Pages for Command Mode	18
Figure 18- OSD Settings Menu	18
Figure 19- Host Adapters for Scan list	19
Figure 20- Scan Dwell Time screen.....	20
Figure 21- Video Adjustment Screen	20
Figure 22- Administration Menu	21
Figure 23- Edit Menu	22
Figure 24- Host Adapter List.....	22
Figure 25- Edit Host Adapters menu.....	23
Figure 26- User List	24
Figure 27- User Info screen	25
Figure 28- Edit User menu.....	25
Figure 29- Submenus of the Edit User menu.....	26
Figure 30- User Password screen	27
Figure 31- Allow/Deny Access to Hosts screen	27
Figure 32- Administrator Password screen	28
Figure 33- Edit User Station screen.....	28
Figure 34- Select user for Autologon	29
Figure 35- User Station Info screen	30
Figure 36- Idle Timeout screen	30
Figure 37- Alternate OSD screen.....	31
Figure 38- Update/Bootloader Menu.....	32
Figure 39- Select MAC Host Adapters screen	33
Figure 40- Select Keyboard Language menu	34
Figure 41- View looking into RJ45 female.....	35

INTRODUCTION

The PRIMUX CAT5 KVM System (PRIMUX) is designed to enable the relocation of a VGA monitor, PS/2 or USB keyboard, and mouse from up to 64 PS/2, SUN, or USB CPUs by as much as 1000 feet. The PRIMUX is comprised of one PRIMUX-UZR User Station and at least one Host Adapter (HA-PS2, HA-USB, or HA-SUN) connected to a CPU to be controlled by the user. The PRIMUX-UZR User Station supports PS/2 and USB user keyboard and mouse (devices). This manual describes the installation and use of both components.

The PRIMUX Host Adapter and User Station are interconnected with either CAT5 Unshielded Twisted Pair (UTP) or Shielded Twisted Pair (STP) cable, CAT5e cable, or CAT6 cable.

The PRIMUX Series CAT5 KVM System is extremely simple to install and has been thoroughly tested to insure reliable performance. Through the use of CAT5, CAT5e, or CAT6 cable it is possible to economically increase the flexibility of a computer system. Here are some of the features and ways this can benefit any workplace:

- Allows the placement of a monitor, keyboard, and mouse in a location where only these parts are needed without having the CPU there too, taking up valuable space
- Allows any PS/2, USB, or SUN CPU to be accessed by a remote user (up to 1000 feet away)
- Additional RJ45 port on the Host Adapter allows the daisy-chaining of up to 64 Host Adapters providing user access to up to 64 CPUs
- Control up to 64 CPUs from one keyboard, mouse, and monitor without "spaghetti" wiring
- Compatible with XGA, VGA, and SVGA systems
- Provides crisp and clear resolution up to 1024x768 /60Hz @ 1000 feet (using CAT5 UTP cable- see pg 35 for details)
- Video quality adjustment is automatic providing optimum image quality
- Allows for future expansion- buy what is needed now, add more later as desired

Supported Operating Systems

The PRIMUX is compatible with:

- | | | |
|---------|------------------|-------------------|
| • Win9x | • WinMe | • Solaris |
| • WinNT | • WinXP | • MAC OS9.x , OSX |
| • Win2K | • Linux 7.x, 8.0 | • Others |

Materials

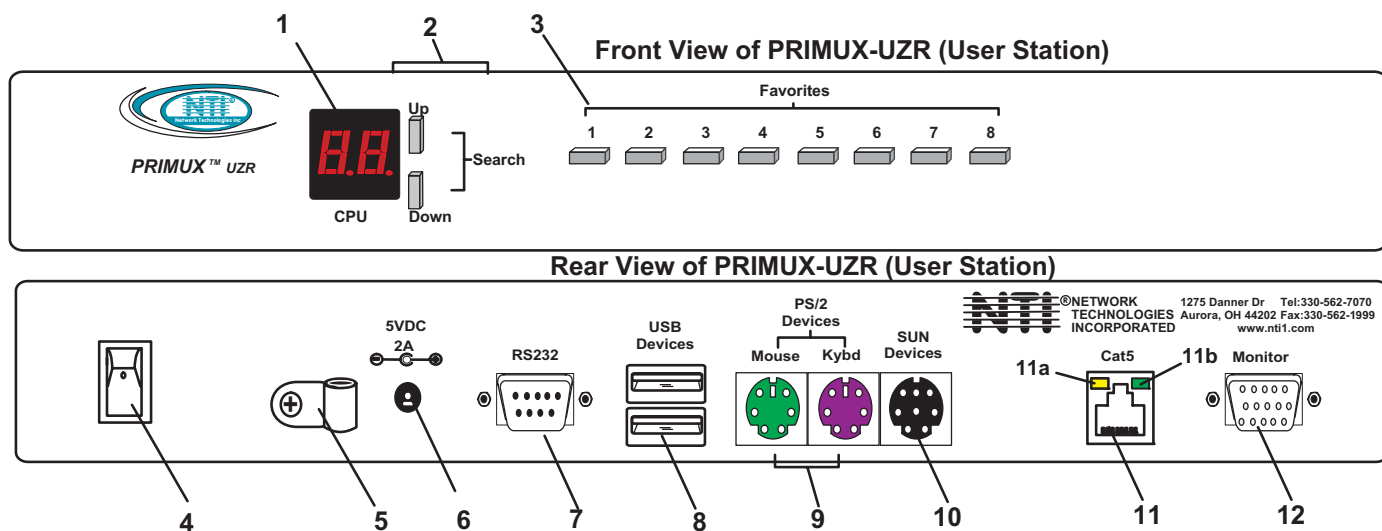
Materials Supplied with this kit:

- NTI PRIMUX-UZR User Station
- 120VAC or 240VAC @ 50 or 60Hz -5VDC/2A AC Adapter
- Line cord, country specific
- Terminating Plug
- PRIMUX CDROM w/ Owner's Manual and Quick Start Guide (pdf files)
- Quick Start Guide (Printed)

Materials **Not** Supplied, but **REQUIRED**:

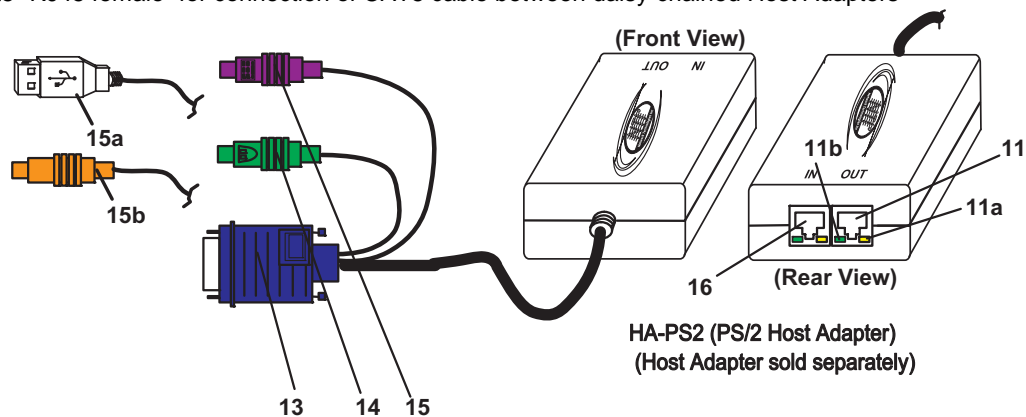
- NTI HA-PS2 PS/2 Host Adapter / HA-USB USB Host Adapter / HA-SUN Host Adapter (see pg. 4)
- CAT5/5e/6 unshielded twisted-pair cable(s) terminated with RJ45 connectors wired straight thru- pin 1 to pin 1, etc. (see pg. 35 for proper EIA/TIA 568B wiring method)
- A null modem cable will be required for future software updates (see specification on page 36).

Cables can be purchased from Network Technologies Inc by calling 800-RGB-TECH (800-742-8324) or (330)-562-7070 or by visiting our website at www.networktechinc.com.



FEATURES AND FUNCTIONS

1. LED Display- for visual indication of which Host Adapter the user is connected to
2. Search Buttons- to enable manual search for desired Host Adapter connection
3. Favorite Buttons- programmable buttons to quick selection of specific Host Adapters
4. Power Switch- to turn the User Station ON and OFF
5. Cable Clamp- to secure the cable from the AC adapter
6. 5VDC 2A- 3.5mm power jack- for connection of AC adapter
7. RS232- DB9 male- serial communication port for updating firmware
8. USB Devices- USB Type A female- for connection of USB user devices (keyboard and mouse)
9. PS/2 Devices- green and purple 6MD females- for connection of PS/2 type mouse (green) and keyboard (purple)
10. SUN Devices- black 8MD female- for connection of SUN mouse and keyboard
11. Cat5 - RJ45 female- for connection of CAT5 cable between Host Adapter and User Station
 - 11a. Yellow LED- power indicator- illuminates when power has been supplied to the unit
 - 11b. Green LED- traffic indicator- illuminates when there is communication between the User Station and Host Adapters.
12. Monitor- for connecting the video monitor
13. Video Connector- blue 15HD male- for connecting to the video port on the CPU
14. Mouse Connector- green male 6 miniDIN (HA-PS2 only)- for connecting to the mouse port on a PS2 CPU
15. Keyboard Connector- purple male 6 miniDIN (HA-PS2 only)- for connecting to the keyboard port on a PS2 CPU
- 15a. Device Connector- male USB Type A (HA-USB only)- for connecting to a device port on a USB CPU
- 15b. Device Connector- orange male 8 miniDIN (HA-SUN only) - for connecting to the device port on a SUN CPU
16. Cat5- RJ45 female- for connection of CAT5 cable between daisy-chained Host Adapters



PREPARATION FOR INSTALLATION

- Choose a location for the User Station such that cables from the keyboard, mouse, and monitor will reach it.
- The CAT5 cables must be run between the locations where the Host Adapter will be connected and User Station is positioned. Be careful to route the cables away from any sources of magnetic fields or electrical interference that might reduce the quality of the signal (i.e. AC motors, welding equipment, etc.) .

NOTE: The installer must ensure that all CAT5 cable between the Host Adapter and User Station, and between each Host Adapter (if more than one) is of the straight-through type and not crossed.

- A 120V or 240V electrical supply (depending on the AC adapter being used) must be provided close enough to the position of the User Station to plug the AC adapter into.
- All cables should be installed such that they do not cause stress on their connections to the equipment. Extended lengths of cable hanging from a connection may interfere with the quality of that connection. Secure cables as needed to minimize this.
- Properly shut down and disconnect the power from the CPU and devices to be extended. If other equipment is involved whose connections are being interrupted, be sure to refer to the instruction manuals for that equipment for proper disconnection and re-connection procedures before proceeding.

Definitions

Segment	A single or series of CAT5 cable(s) from one user station to one or more Host Adapter(s) that are daisy-chained together. A segment begins with the user station and ends with the last Host Adapter in the daisy chain.
Master ID	A unique number assigned by the administrator to a PRIMUX segment. It is used to identify parts that have been configured by the master authority, particularly Host Adapters that attempt to join the segment.
Master Authority	The ultimate controlling authority in a segment (i.e. the master authority establishes the unique I.D. for each Host Adapter). The master authority is part of the User Station.
String	A set of characters, A-Z, 0-9, upper or lower case
Integer	Any whole number (1,2,3...)
Unique ID	Number identifying a Host Adapter to the master authority of a segment.

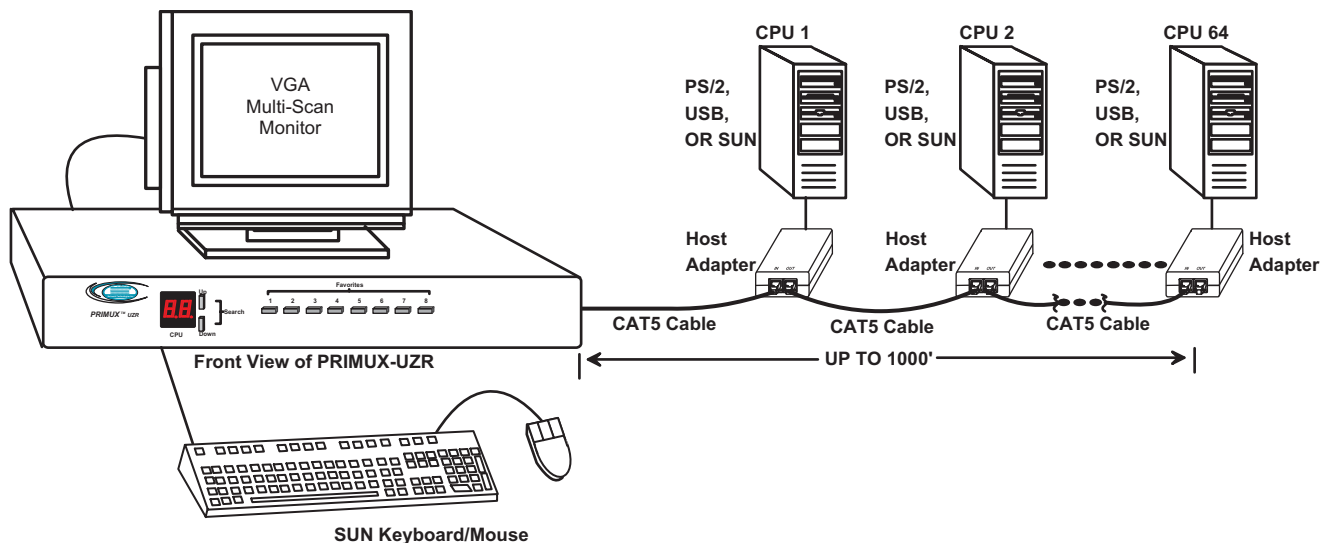


Figure 1- Typical Application

INSTALLATION

The Host Adapter

The PRIMUX HA Host Adapter is designed to support PS/2, SUN, and USB CPUs. For PS/2 CPUs use HA-PS2, for SUN CPUs use HA-SUN, and for USB CPUs use HA-USB. Before installing or removing a Host Adapter, power down the CPU to be connected/disconnected and disconnect the power cord from the CPU.

CAUTION! DAMAGE MAY OCCUR TO THE CPU AND HOST ADAPTER IF POWER IS NOT DISCONNECTED BEFORE CONNECTING OR DISCONNECTING CABLES.

Installation of a PS/2 CPU

Plug the cables of the HA-PS2 Host Adapter into the back of the CPU after disconnecting the power cord from the CPU. (See Fig. 2.)

- Connect the purple 6 pin miniDIN cable end with the keyboard symbol on it to the keyboard port on the back of the CPU.
- Connect the green 6 pin miniDIN cable end with the mouse symbol on it to the mouse port on the back of the CPU.
- Connect the blue 15HD cable end to the VGA port on the back of the CPU.

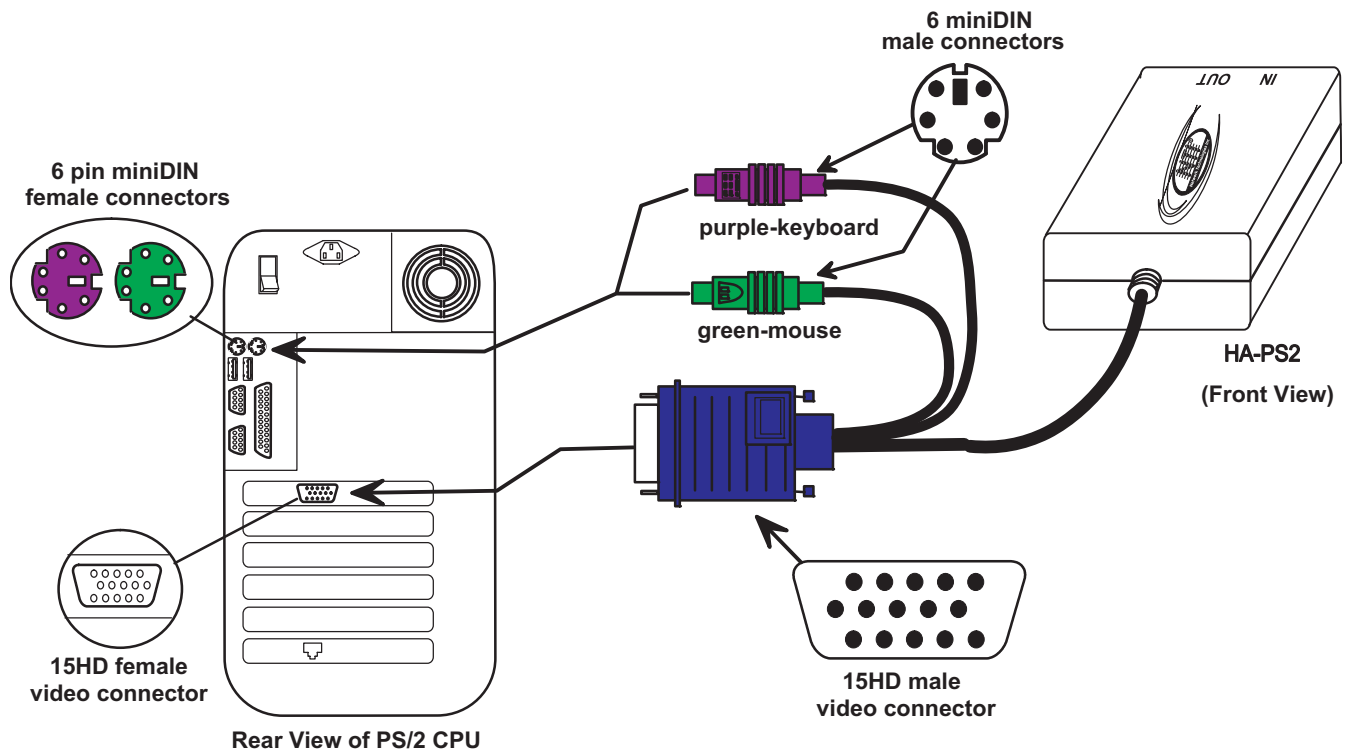
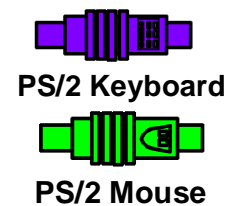


Figure 2- Connect a HA-PS2 Host Adapter to a PS/2 CPU

Installation of a USB CPU

Plug the cables of the HA-PS2 Host Adapter into the back of the CPU after disconnecting the power cord from the CPU. (See Fig. 3.)

- Connect the cable with the USB Type A male cable end on it to a USB Type A female port on the back of the CPU.
- Connect the blue 15HD cable end to the video connector on the back of the CPU.

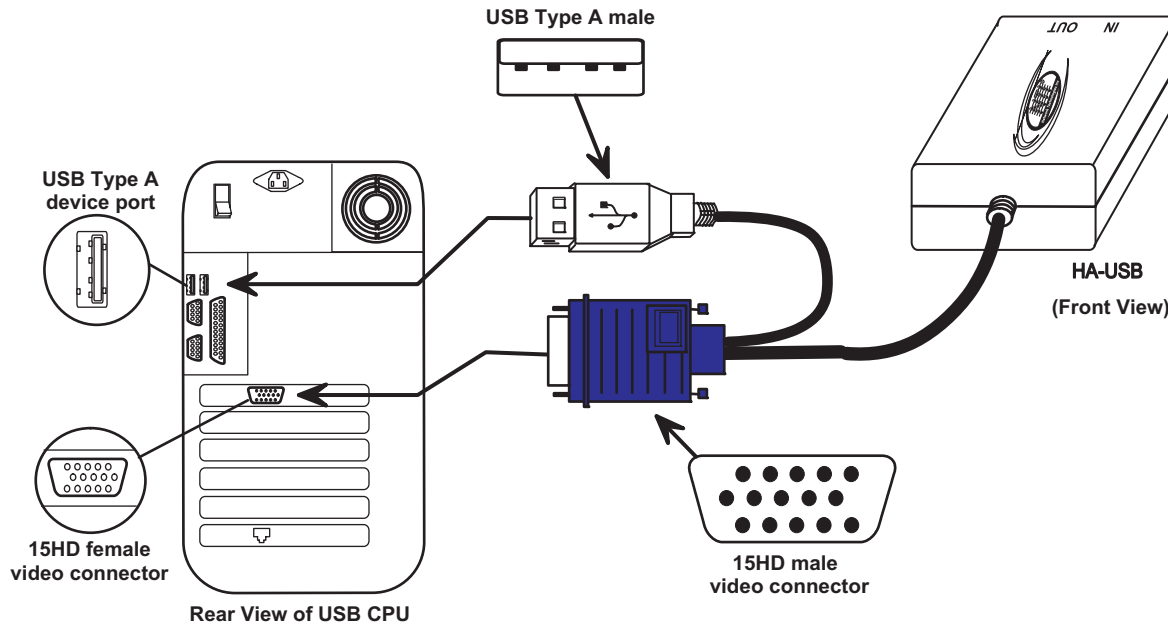


Figure 3- Connect a HA-USB Host Adapter to a USB CPU

Installation of a SUN CPU

Plug the cables of the HA-SUN Host Adapter into the back of the CPU after disconnecting the power cord from the CPU. (See Fig. 4.)

- Connect the orange 8 pin miniDIN cable end on it to the devices port on the back of the CPU.
- Connect the blue 15HD cable end to the VGA port on the back of the CPU.

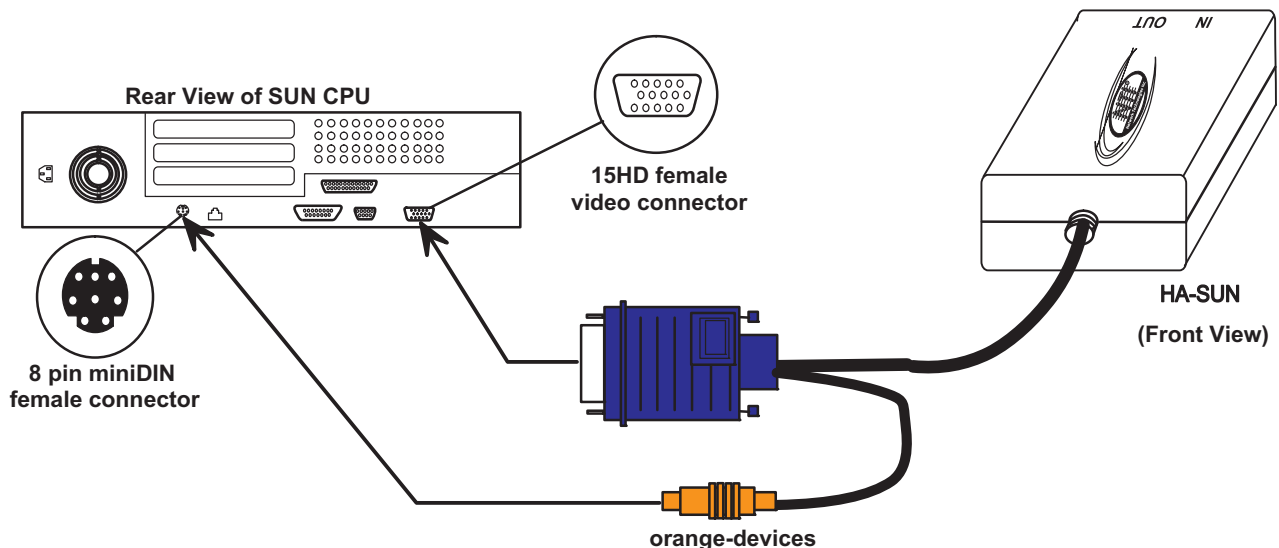


Figure 4- Connect a HA-SUN Host Adapter to a SUN CPU

FYI: The HA-SUN Host Adapter does not provide startup key support for SUN CPUs.

Connecting the CAT5 cable to the Host Adapter

Connect CAT5 cable to the "OUT" port on the Host Adapter. (See Fig. 5.) When properly inserted the cable end should snap into place. Also be sure to insert the Terminating Plug into the "IN" port on the Host Adapter if this is the only Host Adapter in the segment. Otherwise, see "Daisy-Chained Host Adapters" on page 9 to add more Host Adapters to the segment.

NOTE: If an RJ45 wall outlet is being used, connect the other end of the extension cable to the RJ45 wall outlet.



WARNING: Never connect the PRIMUX Host Adapter to an Ethernet card, Ethernet router, hub or switch or other Ethernet RJ45 connector of an Ethernet device. Damage to devices connected to the Ethernet may result.

NOTE: The installer must ensure that all CAT5 cable between the Host Adapter and User Station is of the straight-through type and not crossed.

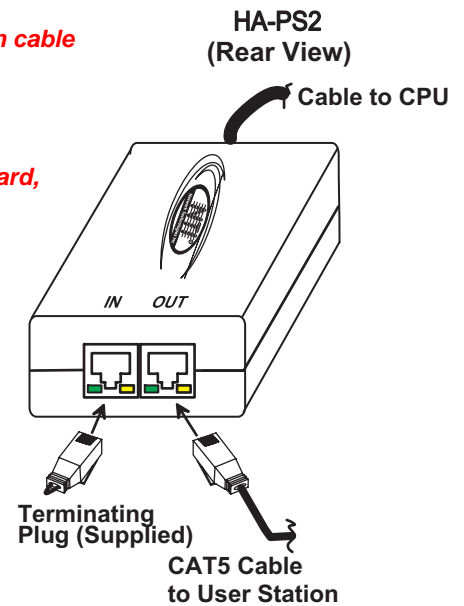


Figure 5- Connect CAT5 cable to Host Adapter

The User Station

The PRIMUX-UZR User Station can be used with either PS/2 devices or USB devices.

NOTE: If the user keyboard connected is PS/2 (6mD connector), then the mouse must also be PS/2. If the user keyboard is USB (USB Type A connector), then the mouse must also be USB.

Installation with PS/2 devices

1. Position the User Station such that the CAT5 cable, the monitor cable, device cables, and the AC adapter power connector can each reach the User Station without cable strain.
2. Connect the monitor cable to the female 15HD video connector on the User Station.
3. Connect the PS/2 device(s) to the User Station (see Fig. 6).
 - a. Connect the keyboard to the purple female 6 pin miniDIN connector on the User Station.
 - b. Connect the mouse to the green female 6 pin miniDIN connector on the User Station.

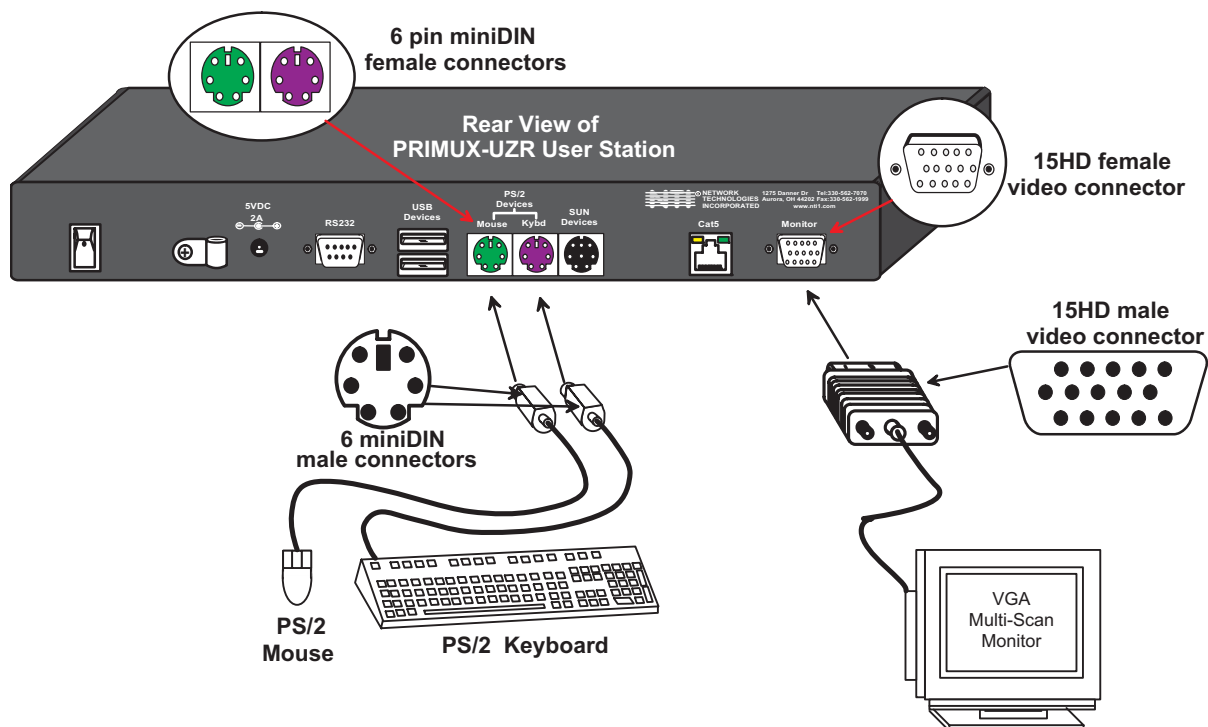


Figure 6- Connect the Extended PS/2 components to the User Station

Installation with USB devices

1. Position the User Station such that the CAT5 cable, the monitor cable, device cables, and the AC adapter power connector can each reach the User Station without cable strain.
2. Connect the monitor cable to the female 15HD video connector on the User Station.
3. Connect the USB device(s) to the User Station (see Fig. 7).
 - a. Connect the keyboard to a USB Type A female connector on the User Station.
 - b. Connect the mouse to the other USB Type A female connector on the User Station.

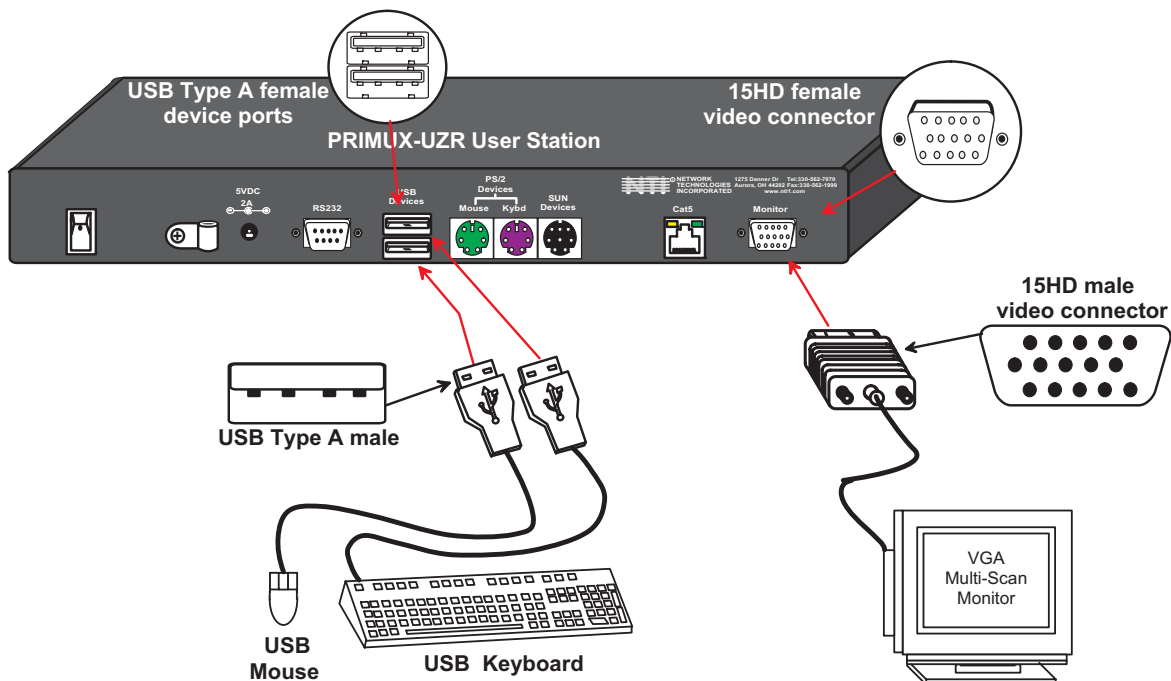


Figure 7- Connect extended USB components to the User Station

Connecting the CAT5 cable to the User Station

Make sure the CAT5 cable has been installed in accordance with the "Preparation for Installation" instructions on page 3. Connect the CAT5 cable to the "Cat 5" port on the User Station. (See Fig. 8.) When properly inserted the CAT5 cable end should snap into place.



WARNING: Never connect the PRIMUX-UZR User Station to an Ethernet card, Ethernet router, hub or switch or other Ethernet RJ45 connector of an Ethernet device. Damage to devices connected to the Ethernet may result.

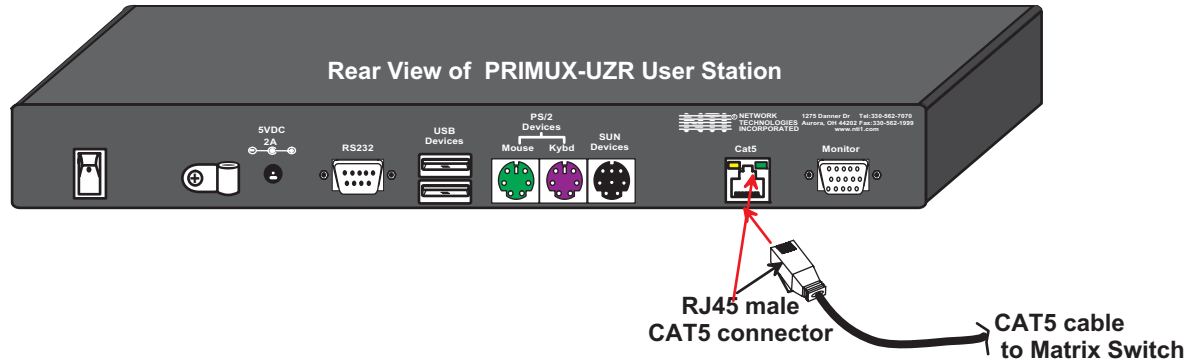


Figure 8- Connect CAT5 cable to User Station

NOTE: If an RJ45 wall outlet is being used, connect the other end of the extension cable to the RJ45 wall outlet.

Power Up for the first time

Note: The user devices, monitor, and CAT5 cable should already be connected before powering up the User Station.

1. Connect the AC adapter power connector to the 5VDC port on the User Station (see Fig. 9). Plug the AC adapter into a power outlet. The yellow LED on the RJ45 connector of the User Station should illuminate, indicating that a proper power connection has been made to it.
2. Re-connect the power cord to the CPU.

FYI: The Host Adapter is powered by the CPU.

3. Power up the monitor.

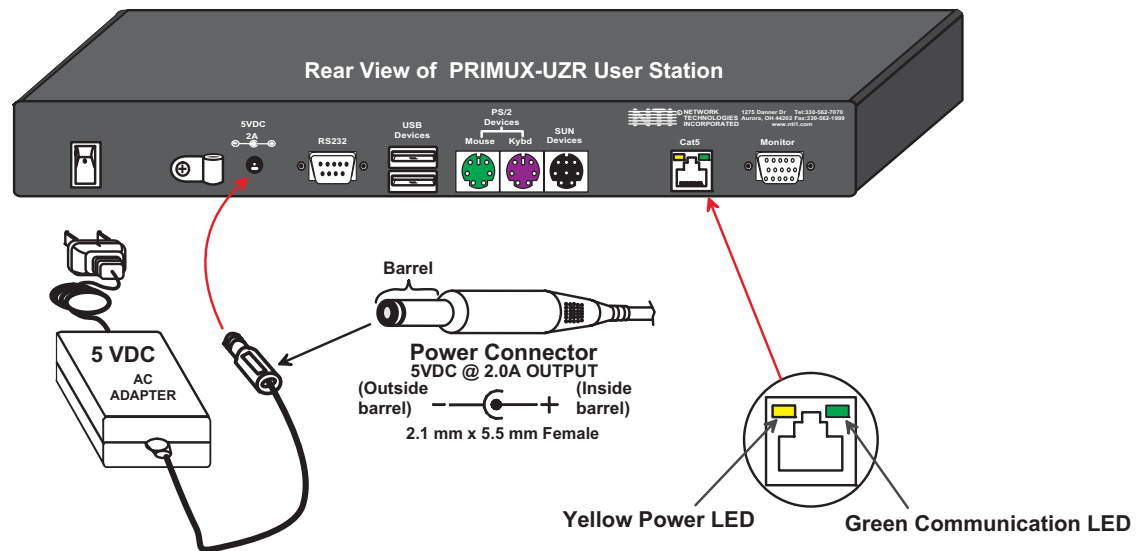


Figure 9- Connect the AC adapter to the User Station

4. With the User Station and Host Adapter connected via CAT5 cable, refer to "Using the PRIMUX CAT5 KVM Switch" on page 10.

FYI: The green LED on each RJ45 connector will illuminate anytime data traffic is passing between the Host Adapter and User Station, indicating proper CAT5 cable connection and communication. (See Fig. 9)

Daisy-Chained Host Adapters

Up to 64 Host Adapters can be connected in a daisy-chain to create a segment of CPUs that are controlled by a single user from a User Station. The first Host Adapter is connected to the User Station via the "OUT" port. The additional Host Adapters in the segment will have CAT5 cable going from their "OUT" port to another Host Adapter's "IN" port to enable communications between the user and each CPU in the system, as shown in Fig. 10. A Terminating Plug must be installed in the "IN" port of the last Host Adapter in the segment.

NOTE: The installer must ensure that all CAT5 cable terminations between each Host Adapter are of the straight-through type (pin 1 to pin 1, pin 2 to pin 2, etc.) and not crossover.

NOTE: The total length of the CAT5 cable from the User Station to the last Host Adapter in the daisy-chain must not exceed 1000'.

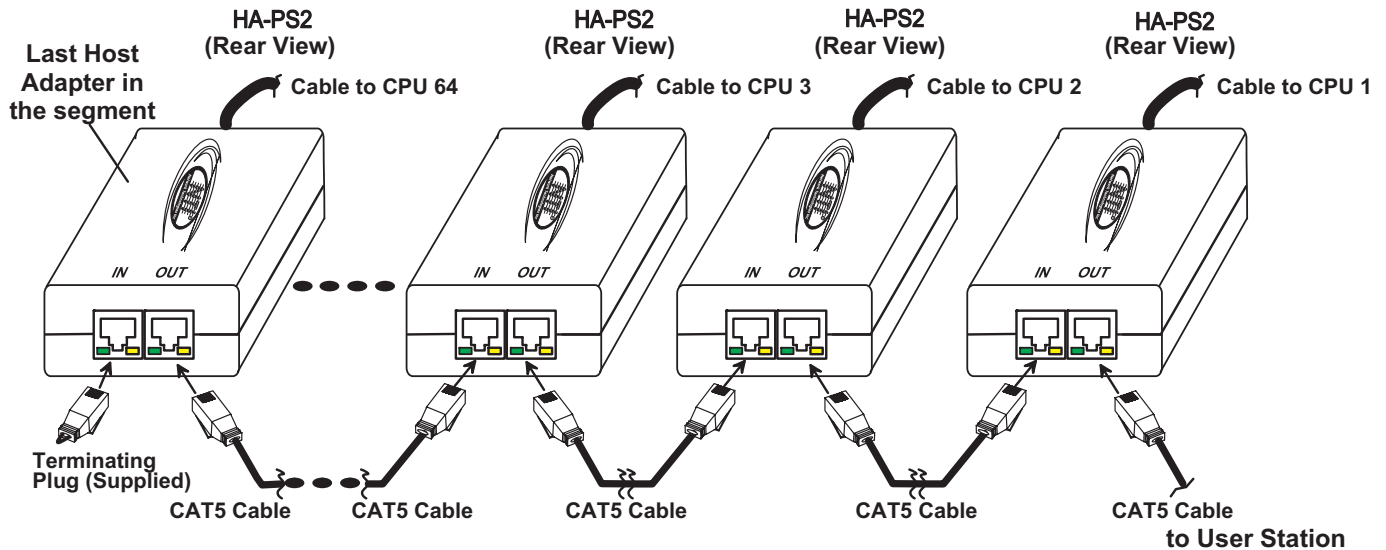


Figure 10- Daisy-chained Host Adapters

Adding a Host Adapter to a segment

When adding a Host Adapter to a segment, whether at the end, or inside the chain (between two other Host Adapters connected together), the administrator must follow some simple steps:

1. Make sure the Host Adapter being connected to a CPU is the proper type for the CPU.

CPU TYPE	HOST ADAPTER MODEL
PS/2	HA-PS2
USB	HA-USB
SUN	HA-SUN

2. Determine what name the Host Adapter will be identified as in the Host Adapter list (should be unique to all other known hosts in the segment).
3. Follow the installation instruction on page 3 for Host Adapters and for above for Daisy-Chained Host Adapters.

FYI: A Host Adapter can be added to the last Host Adapter in the chain, or between two existing Host Adapters.

NOTE: Do NOT attach a Host Adapter to a CPU or disconnect a Host Adapter from a CPU while the CPU is connected to power. Disconnect the power cord first, then connect or disconnect the Host Adapter. Failure to do so may result in damage to the Host Adapter or CPU.

4. Once the installation procedure is complete the connected CPU can be powered up.
5. This Host Adapter will be auto discovered by the master authority. It will identify itself as "(NEW PS2 HA)", "(NEW USB HA)", or "(NEW SUN HA)".
6. The administrator should assign a unique name to the Host Adapter (see page 23)
7. All users will have default access to the new Host Adapter unless the Administrator configures the access otherwise (see page 26).
8. Once access controls have been set, the administrator should verify the security access to the new Host Adapter.

USING THE PRIMUX CAT5 KVM SWITCH

The PRIMUX CAT5 KVM System is designed to enable a user to control as many as 64 PS/2, USB, and SUN CPUs (any mixture of each) from a single User Station as much as 1000 feet from the farthest CPU. Control is achieved through the use of either the keypad on the front panel or On Screen Display (OSD) Menus. Access to one or more CPUs is determined by the security configuration of the PRIMUX as set by the administrator. Once user access limitations are defined, the user can select which CPU to connect to using either the OSD menu, the "Search" buttons on the front of the User Station, or quickly make a selection after programming the "Favorite" buttons.

Hot Plugging

The PRIMUX-UZR is designed to emulate the presence of a mouse and keyboard whenever the PRIMUX-UZR is powered up. As a result, the keyboard and mouse may be hot-plugged from the User Station at any time without causing a CPU error.

Note: Device types cannot be changed when hot-plugging. If the device type is changed (i.e. from PS/2 to USB), the PRIMUX-UZR must be power cycled (turned OFF, then ON again) for the device to work properly.

Note: Both devices must be either PS/2 or USB. There cannot be one of each connected to the User Station.

The PRIMUX Host Adapter may also be hot-plugged to a CPU, provided the CPU and the operating system supports device hot-plugging. (Operating systems known to support hot-plugging include Windows 2000 SP3 and higher, Windows XP, and Linux 2.6 and higher.)

CAT5 cables can be hot plugged. If the CAT5 cable is disconnected, the User Station will continue to monitor all Host Adapters in the Host Adapter List.

FYI: Once a Host Adapter is selected by the User Station it will stay connected or attempt to connect forever if the selected Host Adapter is powered OFF or the CAT5 cable is disconnected. To properly remove a Host Adapter, the user must delete it from the Host Adapter List (page 23).

Hot plugging a Host Adapter to an NTI VOPEX splitter is not recommended. If communication is lost, send a "Reset Host" command (page 23) from the User Station to restore communication.

Initial Startup

After installing the User Station and one or more Host Adapters as described on pages 3-6, when first applying power the user will be prompted to supply a Master ID number. The Master ID number is any number from 0 to 65523. This number will be the Master ID of the segment. All Host Adapters added to the segment will be configured with this number to become part of the segment.

Note: The PRIMUX User Station cannot be used to control anything until the Master Identification number has been properly set.

Note: If more than one segment will be configured, be sure to assign a unique Master ID number to each.

Following assignment of the Master ID number, the NEW_USER1 will be automatically logged-in and the Command Mode menu will appear. By default, access is given to all Host Adapters and their connected CPUs, and Scan Mode will scan all connected CPUs.

User Rights vs. Administrator Rights

Before continuing, the user should consider what action is going to be taken. The User and Administrator of the PRIMUX CAT5 KVM system have different roles and control over what the PRIMUX does.

Administrator Rights Include:

- Change the Administrator Password
- Assign, edit, and remove user names and passwords
- Define user access rights to CPUs in the segment
- Adding and configuring Host Adapters in the segment
- Configure operating parameters of the User Station
- Update DDC information between the monitor and CPUs

FYI: Users can be given full administrative access rights by the administrator.

User Rights Include:

- The ability to connect the user's keyboard, mouse, and monitor to CPUs (only those CPUs that have been granted access by the administrator).
- The ability to enable/disable Scan Mode
- The ability to change the sorting method of Host Adapters by index number or alphabetically

Administrator Login and Password

To login as the administrator, press <L> to logout as NEW_USER1 and the login splash screen will appear. While holding down the <Shift> key, enter an administrator name and default password:

administrator names = ROOT or ADMINISTRATOR (either can be used)
default administrator password = NTI

With a successful login, the administrator can setup additional users (see page 24).

FYI: The User Station can be configured to Autologon a specific user (page 29) with each User Station power up or have a Login splash screen appear for the user to login to the User Station. The administrator can also configure the User Station to autoconnect a user to a specific Host Adapter at logon by configuring the Logon Host and Action on Logon in the Edit User menu (page 25). For more on setting up users, see page 25.

Setup Host Adapter(s)

No initial configuration of the Host Adapter is required for it to be identified by the User Station in the segment. Once discovered it appears in the segment, and the Master Authority assigns the Host Adapter its Unique ID value. This value is used to

- set its identity for the security allow/deny access attribute (page 26)
- set its identity in the list of Host Adapters/CPU's that can be scanned in Scan Mode (page 19)

The Unique ID is stored in the Host Adapter and saved there, even if power is removed.

Quick Connect

From the Command Mode menu, to make connection to any Host Adapter in the segment,
press <G> followed by the index number (see pg 14) of the desired Host Adapter,
press <Enter> to select it,
press <Enter> again to connect to it.

-OR-

use the mouse to select the desired Host Adapter to connect to and click on it to connect.

Press <X> or <Esc> to exit Command Mode and use the connected CPU connected to the selected Host Adapter.
Press <Ctrl> + <'> to return to Command Mode (see pg 13).

Change the Default Administrator Password

Once the administrator is logged in, it is recommended that the administrator change the default administrator password.

To change the administrator password:

- Press A (Administration Menu) - E (Edit Menu) - U (Edit User Menu) - P (Change Root Password)
- Enter the current password (default is "NTI")
- Enter the new password (case sensitive, 16 characters maximum, alphanumeric)
- Press <Enter>
- Re-enter to confirm the new password
- Press <Enter> to finish, or <Tab> to enter the password again.

Note: In the event the password is forgotten, contact NTI for instruction on how to reset the password to the default "NTI".

FYI: When the password is changed for user ROOT, it automatically changes for user ADMINISTRATOR as well.

Standards of Operation

Throughout this manual, various standards of operation apply to the menus used to control and operate the PRIMUX.

- OSD menus can be navigated by the up and down arrows on the keyboard, as well as the <Page Up>, <Page Down>, <Home>, and <End> keys.
 - The up and down arrows increment/decrement one line item at a time
 - <Page Up> and <Page Down> increment/decrement by one page at a time
 - <Home> will jump to the beginning of the list
 - <End> will jump to the end of the list.
- The scroll bar in a list can be used by clicking on the corresponding up and down arrow above and below the scroll bar.
- The mouse wheel may be used to move the selection bar
- Functions that are "Administrator Only" are also available to users having administrative rights (see page 25).
- Placing the mouse over a listed Host Adapter highlighting the listed item with a blackened background "selects" the Host Adapter. Clicking on it while in Command Mode will connect to that Host Adapter.
- Available functions will have white characters with one red character. The background of available functions will become green when the mouse pointer is positioned over the function. Functions that are not available will be transparent.
- When pressing a letter is called for to select a function, press either the corresponding key on the keyboard or use the mouse to select the function.
- To exit any menu, press <Esc> or <X> on the keyboard or click on "Esc" in the menu.
- When "+" is shown between keystrokes, it indicates a chorded sequence (press and hold the keys consecutively until all keys in the sequence are pressed). I.e. <Ctrl>+< > is a chorded sequence to enter Command Mode.
- When "-" is shown between keystrokes, it indicates to press the keys consecutively (press and release one at a time)
- Press <F10> to return directly to the Command Mode menu

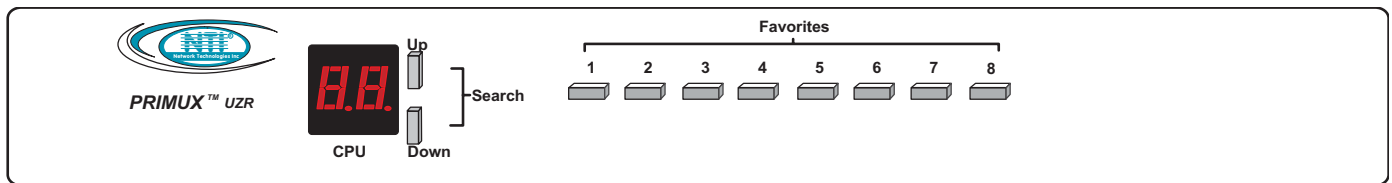


Figure 11- PRIMUX-UZR front panel

Keypad Control

The keypad on the front panel of the PRIMUX User Station enables a user to quickly set the User Station to connect to the desired CPU. Two seven-segment LEDs illuminate to show the index number of the Host Adapter the user is connected to. The Up and Down buttons enable the user to search for the desired CPU. The Favorite buttons, 1-8, can be programmed for quick selection of the most commonly connected CPUs. (See Fig. 11) By default, the Favorite buttons 1-8 are pre-programmed to connect to Host Adapters 1-8.

To program a Favorite button,

- Use the Search buttons to select the desired Host Adapter index number to connect with (or use OSD Command Mode).
- With the index number in the LED display, press and hold the Favorite button to be associated with it for at least 2 seconds. The LED will blink when the selection is remembered and until the Favorite button is released.
- When this button is pressed, the User Station will immediately connect to the selected Host Adapter.
- Repeat for each Favorite button to be programmed.

Note: Favorite buttons are not available when PRIMUX is mounted in a RACKMUX-15/17-PRIMUX drawer.

Security

The PRIMUX CAT5 KVM System is designed with security to prevent unauthorized use of the CPUs connected as determined by the administrator. Up to 16 users may be given access to the system, each with individual limitations of use. Only the administrator or user with administrative privileges can activate or deactivate the security features on each user port. Finally, the administrator can set a maximum idle time value after which the current user will be logged out and the login splash screen displayed again. The current security status, idle time out, and scan dwell time are all saved and will be restored whenever power to the User Station is cycled OFF, then ON. To reset the administrator's password call NTI and have the device serial number of the PRIMUX User Station available.

Administrator Login

To access the OSD menu Command Mode from the keyboard press the <Ctrl> + <`> (accent key). (An additional alternate OSD key may be defined, see page 31) The User Login screen will automatically appear on the monitor. In order to configure the PRIMUX, when the PRIMUX is powered ON, the administrator can login with a proper user name and password. While holding down the <Shift> key, enter the following;

administrator names = ROOT or ADMINISTRATOR (either can be used)
default administrator password = NTI

FYI: The names for the administrator cannot be changed.

Once logged-in, follow the instructions on pages 10 or 27 for changing the password. Once the password is setup, if it is lost or forgotten the administrator will have to contact NTI for assistance on clearing the password and set it up again. The administrator can setup each of the users (page 26) and the limitations of their use of the individual CPUs from within Administration Mode.

Autologin

By default, the user account NEW_USER1 has been configured to automatically login at power-up. The administrator may reconfigure the User Station to autologin a different user (page 28) or have a Login splash screen appear at power-up requiring a user to login, with or without a password). The autologin user uses CPUs listed in its Host Allow/Deny Access List as configured by the administrator (page 26).

User Login

The administrator may configure the User Station to require each user to login using a predefined password to gain access rights to CPUs and to the features in the OSD menus. Once logged in, the user may be directed to either a specific CPU (provided the CPU is powered ON), or to the OSD menu where the user can decide what action is to be taken. The initial action (Action on Logon- page 25) and whether or not to connect to a specific Host Adapter (Logon Host- page 25) will be configured by the administrator.

Once logged-in a user can use the Command Mode functions described below and on page 14 to control the segment of CPUs within the limitations as determined by the administrator.

Function	Keystroke
Add a character to the user name/password	A-Z, 0-9 Max. 16 characters
Remove previous character from the user name/password	Backspace
Submit user name/password	Enter or Tab

If the password submitted is incorrect, the user will not be able to proceed.

If the password submitted is correct, the user will either proceed to a CPU chosen by the administrator and operate in Normal Mode, or proceed to the Command Mode menu.

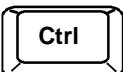



Figure 12- Login splash screen

User Access Functions

Command Mode

In order to control the User Station with the keyboard, Command Mode must be enabled. To enable Command Mode from the keyboard:

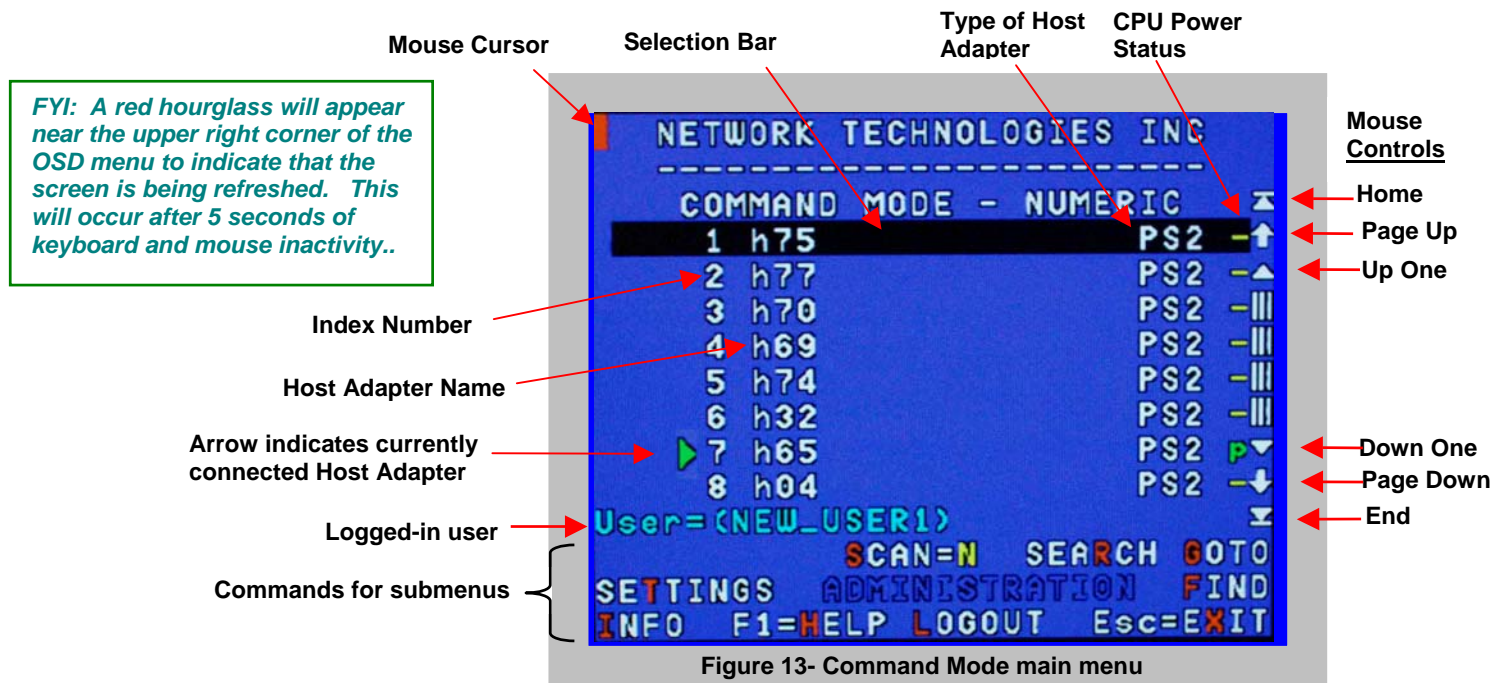
Press  +  (ACCENT KEY)

All the status lights on the keyboard will illuminate to indicate that Command Mode is enabled. At this point, the Command Mode menu will be displayed.

The Command Mode menu (see Fig. 13) lists all Host Adapters by name and index number. Only 8 Host Adapters are listed on the screen at a time. To view the other portions of the list, scroll using the arrow keys on the keyboard or use the mouse to click on the arrows on the scroll bar in the OSD menu. When the Command Mode main menu is first displayed, the first Host Adapter listed will be the Host Adapter the current user is connected to, followed by the next seven consecutively numbered ports. (Alternatively the list may be sorted alphabetically- see Settings Menu on page 15 to toggle sort method.) The names of accessible Host Adapters are displayed with white characters. The access rights for the user logged-in may not include all Host Adapters. Names of restricted access Host Adapters are displayed in blue.

An arrow to the left of an index number in the list indicates the Host Adapter the user is currently connected to. From left to right, the columns display the following:

- Index Number
- Host Adapter Name
- Type of Host Adapter connected (PS2, SUN, or USB)
- CPU power status (where "p" means ON and "-" means OFF)



The list below describes the command functions available from the keyboard within the OSD mode of control after entering into Command Mode:

Function	Keystroke
Select the previous Host Adapter	Up Arrow
Select the next Host Adapter	Down Arrow
Decrements the menu by 1 page (displays the previous 7 Host Adapters)	Page Up
Increments the menu by 1 page (displays the next 7 Host Adapters)	Page Down
Display first 8 Host Adapters and move selection bar to the first	Home
Display last 8 Host Adapters and move selection bar to the last	End
Press to toggle enable/disable Scan Mode	S
Enter Settings Menu	T
Find a Host Adapter (using name, comment, unique ID, index number)	F
Enter Administration Mode (Administrator only- see page 20)	A
Display info for the selected Host Adapter/User Station	I
Display Command Mode Help Menu	H or F1
Go to - select Host Adapter by index number	G
Search- select Host Adapter by name	R

Function	Keystroke
Connect to the highlighted Host Adapter	Enter or Spacebar
Log Out the User/Administrator and disconnect from the Host Adapter (The login screen will appear)	L
Exit Command Mode without logging out	X or Esc

The mouse can also be used to control the User Station Command Mode.

- The scroll wheel can be used to scroll through the Host Adapters list.
- The mouse cursor can be moved to the any of the command fields where the user can click on the left mouse button to select that function.
- Host Adapters listed on the screen can be selected by moving the cursor onto a Host Adapter.
- To connect to a Host Adapter, click on the selected Host Adapter.
- To move through the Host Adapter list, the scroll bar to the right of the list can be used by clicking the up and down arrows.

Note: Exit Command Mode to enter Normal Mode and control the connected CPU. To exit Command Mode, press <Esc> or click the “ESC” command on the screen with the mouse.

Scan Mode

To activate Scan Mode press <S> from the Command Mode menu.

Scan Mode enables the user to scan through selected Host Adapters and to have full device control of the connected Host Adapter. From the Settings menu (below) the user can edit the list of Host Adapters that can be scanned. A Host Adapter is skipped from the scan cycle if one of the following conditions is true:

- the Host Adapter is not in the scan list
- the user does not have access rights to the Host Adapter

When switching to a new Host Adapter the Host Adapter name is displayed by OSD for 5 seconds or until a key is pressed or the mouse is moved, whichever comes first. The scan dwell time is programmable from 2 to 255 seconds (default time-out period is 5 seconds). When the user moves the mouse or types on the keyboard the scanned Host Adapter becomes active and scanning is stopped. The switch will resume scanning after a period of user inactivity determined by the scan dwell time. See Settings Menu below for configuring the scan dwell time.

Note: The keyboard and mouse must remain idle for the full scan dwell time before the switch selects the next active Host Adapter.

Normal Mode

When the User Station is not in Command or Scan mode and the OSD control is not active on the monitor, the user is in Normal Mode, controlling the CPU to which the user is connected through the PRIMUX switch.

Settings Menu

To enter the Settings Menu, press <T> from the Command Mode Menu.



Figure 14- Settings menu

Settings Menu

Function	Description	Keystroke
OSD Settings	Enables the user to reposition or resize the OSD menu on the monitor	O
Numeric Host List or Alphabetic Host List	Toggle between listing Host Adapters by reference number vs alphabetically by name	I
Hosts for Scan	Choose CPUs to be scanned	S
Change Scan Dwell Time	Set length of time a user can dwell (no keyboard or mouse action) before PRIMUX will automatically scan to the next accessible CPU	T
Adjust Video Quality	Adjust the video quality to improve the screen image	V
Esc	Exit the Settings menu	X or Esc

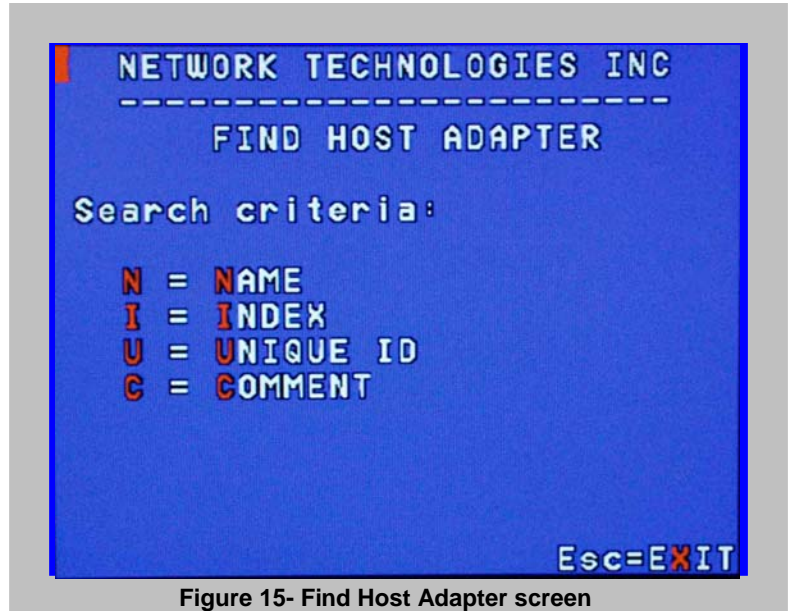
FYI: CPUs will only be scanned if the user has been allowed access to the CPU (See "Allow/Deny Access To Hosts" on page 26) by the administrator.

FYI: Functions S,T, and V are not available when the "ROOT" user is logged in. The "ROOT" user cannot connect to a Host Adapter. The "ROOT" user is able to perform administrative tasks only.

Find Host Adapter

When the user presses <F> from the Command Mode menu, the Find Host Adapter screen will appear, with the following search criteria to choose from:

- N- Name- to search by name
- I - Index- to search by index number
- U- Unique ID- to search by the unique identification number
- C- Comment- to search by words in the comment field of the Host Adapter info screen



To continue, press a letter, then type in the value of the chosen parameter.

Function	Keystroke	Value or Action
Name	N	type in the name of the Host Adapter, up to 16 characters, case sensitive
Index	I	type in the index number for the Host Adapter
Unique ID	U	type in the Unique ID value of the Host Adapter
Comment	C	type in the case sensitive comment, up to 32 characters.
Exit	Esc	To cancel the search and return to the Command Mode menu

FYI: If the wrong characters are entered, use the <Backspace> key to remove and edit characters to submit for search.

The first match to the characters submitted will be displayed as the parameter value is entered.

Host Adapter Info screen

To display the selected Host Adapter Info screen, press <I> from the Command Mode menu.

FYI: If there are no Host Adapters configured, the information screen for the User Station will be displayed instead.

This screen displays the following information:

Item	Description
Name	The name of the Host Adapter
Comment	could be used to describe the location of the Host Adapter
Unique ID	a value unique to the segment
Master ID	the segment 's Master ID
Index	number used in the index of the Command Mode menu
Revision	ROM version, used to identify the Host Adapter firmware version installed
Type	PS2, SUN, or USB (Identifies the type of Host Adapter connected)
CodeCRC	ROM CRC, use for identification purposes
HostID	An internal serial number



Function	Keystroke
Display User Station info screen	S
Display logged-in user info screen	U
Return to Command Mode	X or Esc

Help Pages

The Help pages can be viewed by pressing <F1> or <H> from the Command Mode menu. The Help pages (2) list a brief explanation of each of the commands to be used in the Command Mode menu.

- Press <P> or <Page Down> to view the second Help page.
- From the second Help page press <P> or <Page Up> to return to the first Help page.
- Press <X> or <Esc> or click on <Esc=EXIT> to return to the Command Mode menu.

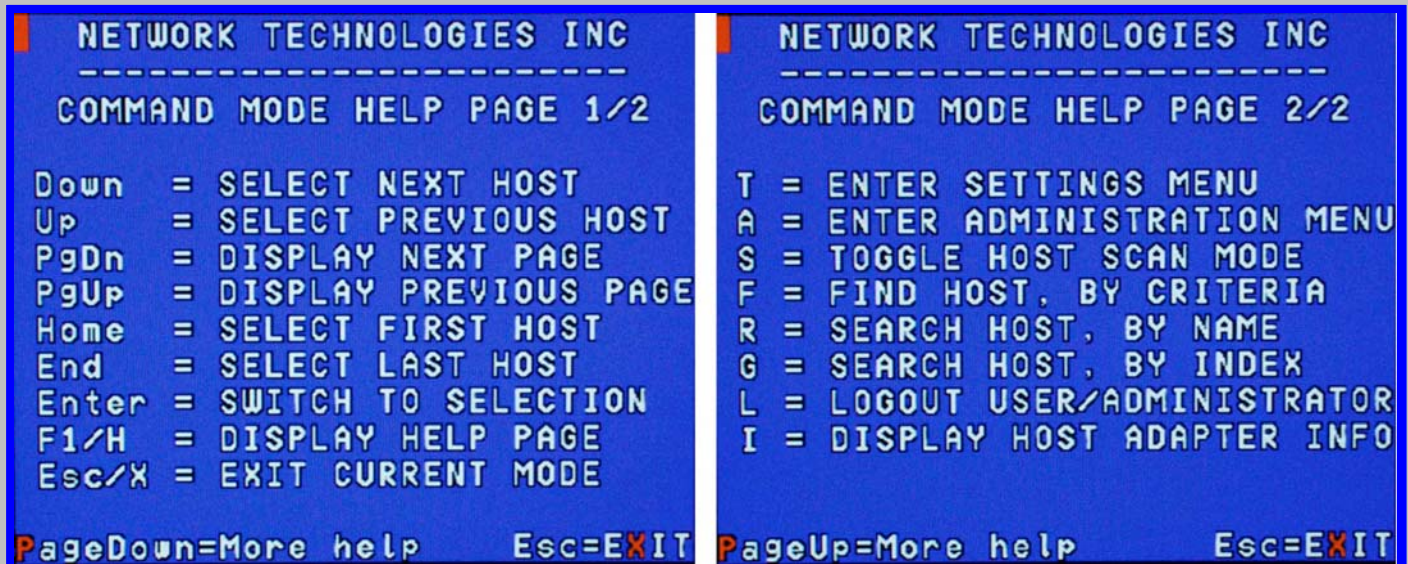


Figure 17- Help Pages for Command Mode

OSD Settings Menu

To enter the OSD Settings Menu, press <O> from the Settings Menu. (From the Command Mode menu press <T> - <O>.) Using the OSD Settings, the user can resize and reposition the OSD window on the monitor as desired.



Figure 18- OSD Settings Menu

OSD Settings Menu		
Function	Description	Keystroke
Move OSD Window Down	Moves the OSD window down on the monitor	D or ↓
Move OSD Window Up	Moves the OSD window up on the monitor	U or ↑
Move OSD Window Right	Moves the OSD window to the right on the monitor	R or →
Move OSD Window Left	Moves the OSD window to the left on the monitor	L or ←
Make OSD Window Taller	Makes the OSD window taller on the monitor	T
Make OSD Window Shorter	Makes the OSD window shorter on the monitor	S
Reset OSD Window	Resets the OSD to the default size and position	W
Esc	Exit the OSD Settings menu. Any changes are automatically saved.	X or Esc

Host Adapters for Scan

From the Settings Menu, press <S> for the list of Host Adapters to select for scanning. (From Command Mode press <T> - <S>)

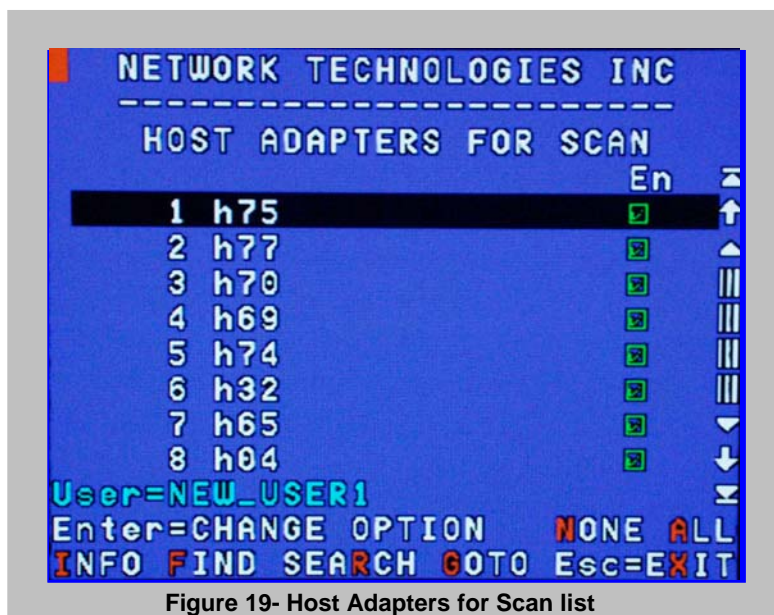


Figure 19- Host Adapters for Scan list

Scan Mode enables the user to scan through selected ports and to have full device control of the connected port. From this menu the user can edit the list of ports that can be scanned.

Only the selected ports will be scanned in Scan Mode when the respective user is logged in. Each user can have their own scan list (except for the "ROOT" user).

A check list with all the Host Adapter index numbers and names followed by a check-box will be displayed in the window.

- unchecked box = the corresponding Host Adapter is **not** in the scan list
- checked box = the corresponding Host Adapter **is** in the scan list

The user can toggle the state of the selected check box by pressing <Spacebar>, <Enter> or clicking the Host Adapter with the mouse.

Function	Description	Keystroke
All	Select all Host Adapters	A
None	Clear all selected Host Adapters	N
Find	Find a Host Adapter using name, comments, unique ID, or index number	F
Search	Locate a Host Adapter by name	R

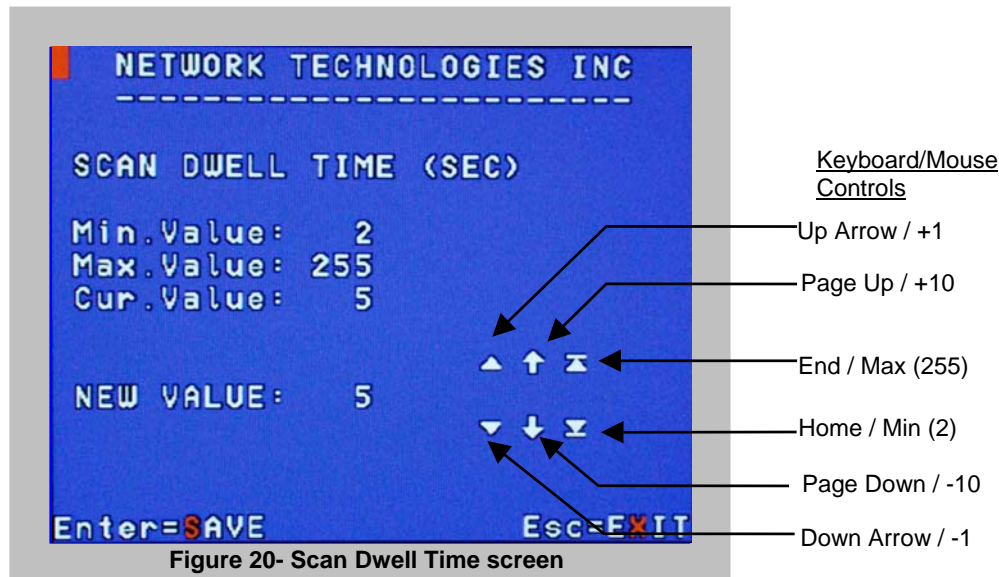
Goto	Locate a Host Adapter by index number	G
Info	Display the info screen about the selected Host Adapter	I
	Display a Help Page	F1
Exit	Return to the Settings Menu	X or Esc

The scan selection list is automatically saved.

Change Scan Dwell Time

When the <T> is pressed from the Settings Menu (From the Command Mode menu press <T> - <T>), a screen will appear displaying the parameters for the scan dwell time. The "Cur. Value" shown is the current value. The user can modify the scan dwell time. Any value between 2 and 255 (seconds) is acceptable. The default scan dwell time value is 5 seconds.

Function	Keystroke
Increment value by 1	Up arrow
Decrement value by 1	Down Arrow
Increment value by 10	Page Up
Decrement value by 10	Page Down
Minimum value (2)	Home
Maximum value (255)	End
Save the new value	Enter
Esc	X or Esc

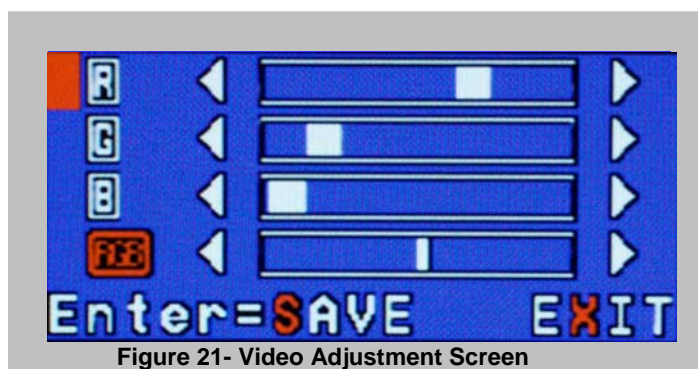


Video Quality Adjustment

Video quality adjustment is done automatically to assure the image is as clear as possible. However, due to the different twisting rates of each pair of wires in the CAT5 cable, variations in the signal delays between the red, green, and blue channels will occur when the cable is longer than 300 feet. The variations could result in poor image convergence (i.e. instead of a white vertical line the user will see three vertical lines: red, green, and blue). These variations may be adjusted by changing the settings in the first three horizontal scroll bars. Changing the settings will vary the timing of the signals and ultimately balance them out.

To display the Video Adjustment screen, press <V> from the Settings Menu. (From the Command Mode menu press <T>-<V>.) An image with 4 horizontal bars (video components) will appear.

FYI: Video Quality Adjustment may need to be repeated if the CAT5 cable is changed.



Function	Keystroke
To move between the scroll bars	Press <Up Arrow> or <Down Arrow> or <R>, <G>, , or <A> or click on the row
To adjust the scroll bar setting	Press <Left Arrow> or <Right Arrow> or click on the left/right arrow
Save changes and exit menu	Press <Enter> or <S> or click on <Enter=SAVE> A blinking yellow "OK" will confirm
Modify screen position	Move the mouse beyond the image boundaries to drag the image
Exit menu without saving	Press <Esc> or <X> or click on <EXIT>

The "RGB" scroll bar is used for fine video quality adjustment of all colors. This allows the user to "fine tune" the quality of the adjusted video.

To verify if such an adjustment is actually needed, open an application with a white window (i.e. Microsoft Word) and move the window to the right side of the screen to create a white-to-black transition. If a colored vertical line can be seen at the edge of the white window the adjustment may be needed. According to the color of the line, change the setting of the corresponding horizontal scroll bar until the cleanest white-to-black transition is obtained.

Video Quality adjustment values are stored on a per Host Adapter basis. Adjustment may be necessary for each Host Adapter.

FYI: For additional quality adjustment, it may be necessary to adjust the brightness and contrast settings of the monitor.

Administration

Administration Menu

Note: The Administration menu will only be accessible if the administrator is logged in or if the user has administration rights.

Press <A> from the Command Mode menu to display the Administration menu.



The table below describes the functions of the Administration menu.

Function	Description	Keystroke
Edit Host Adapter, Users, and User Station	Edit the names and settings of the Host Adapter, Users, and User Station	E
Update/Bootloader Menu	Update the firmware of the User Station and Host Adapters	B
Change Idle Timeout	Set the time period for the Idle Timeout	I
Alternate OSD Key	Define the alternative key sequence (if any) to enter Command Mode	K
Acquire/Send DDC Info	Send DDC information about the monitor to all connected and powered ON Host Adapters	D
Configure MAC Hosts	Configure Host Adapters for use with MAC CPUs	M
Select keyboard language	Select the keyboard language for use with the CPU	L
Esc	Return to the Command Mode menu	X or Esc

Edit Hosts, Users, and User Station Info

From the Administration menu, press <E> to display the Edit Menu .

Function	Keystroke
Display Host Adapter List w/options for editing	H
Display User List w/options for editing	U
Edit User Station Parameters	S
Return to the Administration menu	X or Esc



Host Adapter List

From the Edit Menu, press <H> to display the Host Adapter List from which the administrator can edit or view selected Host Adapter parameters. (From Command Mode type <A> - <E> - <H>.)



Function	Description	Keystroke
Edit	Change the selected Host Adapter parameters	E
Info	Display info about the selected Host Adapter	I
Find	Find a Host Adapter using name, comments, unique ID, or index number	R
Search	Locate a Host Adapter by name	F
Goto	Locate a Host Adapter by index number	G
	Display Help Page for Host Adapter List	F1
Exit	Return to the Edit menu	X or Esc

Edit Host Adapter

With a Host Adapter selected from the Host Adapter List, press <E> to bring up the Edit Host Adapter menu. (From Command Mode type <A> - <E> - <H> -<E>.)



Figure 25- Edit Host Adapters menu

To edit the Host Adapter enter the desired parameter values as defined in the chart below:

Function	Keystroke	Confirmation Required	Parameter Value
Modify the name (of the selected Host Adapter)	N	No	String, 16 characters max., case sensitive
Modify the Index number (see note below)	I	No	Integer
Modify the Comment	C	No	String, 32 characters max., case sensitive
Reset Host Adapter - perform an internal power reset	R	Yes	N/a
Reset Host Adapter Data to default settings	E	Yes	N/a
Delete Host Adapter	D	Yes	See Host Adapter List (pg. 22)
Return to Host Adapter List	X or Esc	No	N/a

FYI: When modifying the Index number, the position of that Host Adapter in the Host Adapter list will be adjusted as defined and the positions of the other Host Adapters in the list will be shifted accordingly.

FYI: When resetting the Host Adapter data to default settings, all configurable settings including DDC information and the MAC configuration will be removed.

User List

From the Edit Menu, press <U> to display the User List from which the administrator can edit or view selected User parameters, (From Command Mode type <A> - <E> - <U>.)



Figure 26- User List

Function	Description	Keystroke
Info	Display info about the selected User	I
New	Add a new user- a confirmation of Yes or No will be required (see page 26)	N
Edit	Change the selected user parameters or remove the user (see page 25)	E
Rootpwd	Change the administrator password (see page 28)	P
	Display User List Help pages	F1
Exit	Return to the Edit Menu	X or Esc

A green checked box next to a user indicates the user is enabled. A yellow unchecked box indicates the user is disabled. Press <Enter> or <Spacebar> or click on the user line to toggle whether a user is enabled or disabled.

A yellow "A" in the "Adm" column indicates the user has administrative privileges, otherwise a "-" is displayed.

To create a new user the administrator will be prompted for a yes "Y" or no "N" blinking confirmation "Are your sure? (Y/N)"before carrying out the command.

User Info

To display User Info, press <I> from the User Name List. (From Command Mode type <A> - <E> - <U> - <I>.) The User Info screen provides all of the current information about the selected user.

Item	Description
Name	The name of the User
Comment	could be used to describe the location of the User
Unique ID	a value unique to the segment
Enabled	determines if the user is permitted access to the segment
LogonUID	Displays which Host Adapter the user will logon to automatically if the LogonAct is set to 1
LogonAct	Displays if the user will logon to a specific Host Adapter (1) or to Command Mode (0) at logon



Function	Keystroke
Return to the User Name List menu	X or Esc

Edit User

From the User List press <E> to bring up the Edit User menu. (From Command Mode type <A> - <E> - <U> - <E>.)



To edit User parameters enter the desired parameter values as defined in the chart below:

Function	Keystroke	Parameter Value
Modify the name (of the selected User)	N	String, 16 characters max., case sensitive
Modify the password (of the selected user)	P	String, 16 characters max., case sensitive
Modify the Comment Field	C	String, 32 characters max., case sensitive
Action on Logon - determines what action to take when a user logs on to the User Station	O	0= bring up Command Mode menu 1= connect to CPU specified by Logon Host
Logon Host- determines what Host Adapter to connect to at logon	L	Select host to be connected to automatically when user logs on
Assign Administrative Privileges to user	A	Y or N Press <Y> or <N> and <Enter>
Define Hosts to Allow/Deny access to	H	Choose from the list, toggle selection(s) using mouse or spacebar
Delete this user (Confirmation required)	D	Y or N Press <Y> or <N> and <Enter>
Return to User List	X or Esc	N/a

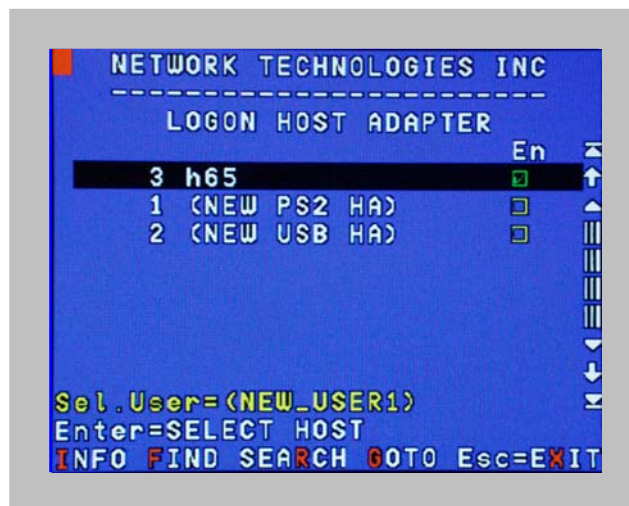


Figure 29- Submenus of the Edit User menu

Add New User

From the User List press <N> to add a new user. (From Command Mode type <A> - <E> - <U> - <N>.) The administrator will be prompted for a "Y" or "N" answer to "Are you sure?" and with a "Y" answer the Edit User menu will come up where all of the parameters for a new user can be defined. When finished, press <X> or <Esc> to exit the menu and the new user will have been added to the User List.

By default, a new user will be given access to the same Host Adapters as those listed in the Host Adapter access list of User #1. To change this, the administrator must edit the user host access list as described on page 27.

FYI: The first user in the user list is used as the "template" user. Each time a new user is created, the configuration parameters of the first user are copied to the new user. The administrator can either leave those parameters unchanged and rapidly setup more users with the same access rights as the first user, or change the parameters as desired.

Edit User Password

The administrator can edit the user password by pressing <P> from the Edit User menu. . (From Command Mode type <A> - <E> - <U> - <E> - <P>.) To setup the password:

- Enter a password- 16 characters maximum, alphabetical or numeric, (passwords are case sensitive)
 - Press <Enter> or <Tab>
 - To confirm, re-enter the password
 - Press <Enter> to save and return to the Edit User menu, or press <Tab> to enter the password again
- or
- Press <Esc> to cancel and return to the Edit User menu without making any changes

The default user password is none, meaning if no password is assigned, a user will need only to submit a valid user name and press <Enter> to login and use the CPUs in the segment to which they have access.

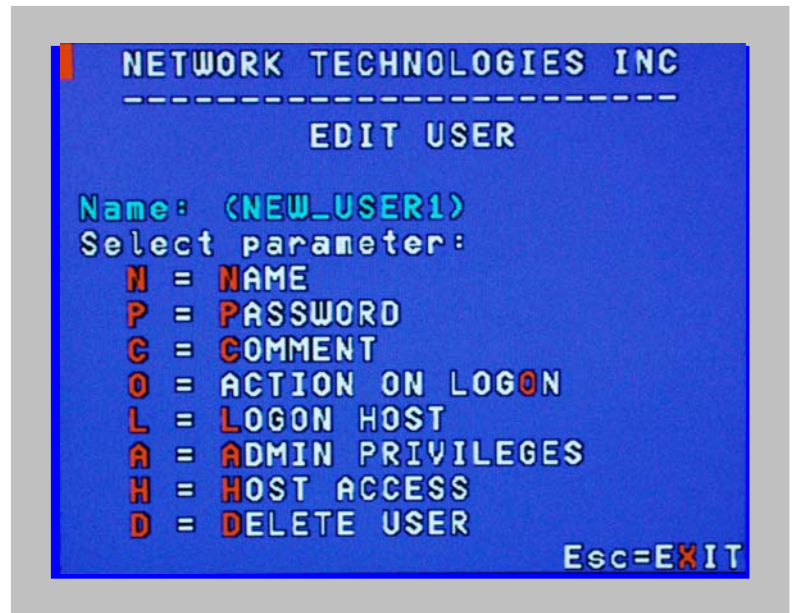


Figure 30- User Password screen

Host Access List

To define what CPUs a user has access to, press <H> from the Edit User List (pg 25). (From Command Mode press <A> - <E> - <U> - <E> - <H>.) The "Allow/Deny Access to Hosts" list will be displayed.

Function	Description	Keystroke
NONE	Deselect all	N
ALL	Select all	A
INFO	Display info for selected Host Adapter	I
FIND	Find Host Adapter (using name, index number, comments, or ID)	F
SEARCH	Locate Host Adapter by name	R
GOTO	Locate Host Adapter by index	G
EXIT	Esc	X or Esc

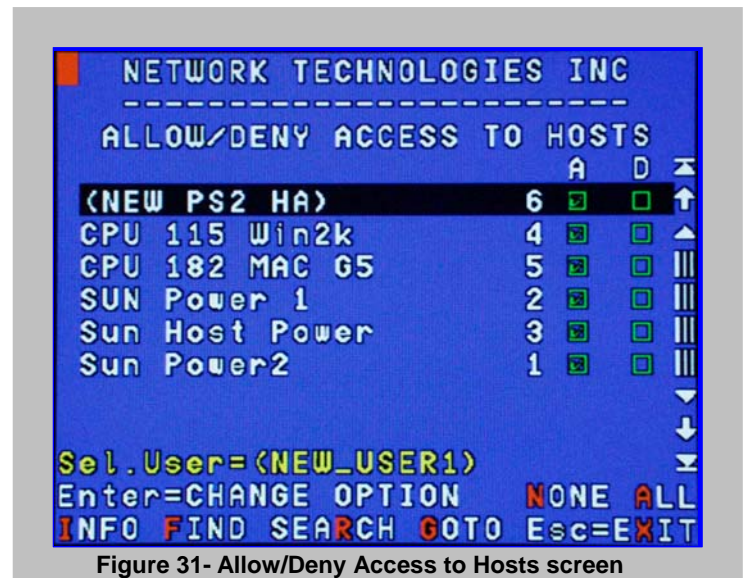


Figure 31- Allow/Deny Access to Hosts screen

All available Host Adapters will be listed 8 at a time. Use the arrow keys, mouse, Page Up/Down, Home, or End keys to move the selection bar and see more Host Adapters if they are available. With the selection bar over the desired Host Adapter;

- press <Enter> or <Spacebar> to grant user access or not to the Host Adapter.
 - a green checked box in the "A" (allow) column indicates access granted
 - a yellow checked box in the "D" (deny) column indicates access denied
 - if neither box "A" nor "D" is checked, access is denied
- press <F1> to display the associated help file.
- press <Esc> or <X> to exit and return to the User Access to Hosts list.

Change Administrator's Password

To change the Administrator's Password, press <P> from the User List. (From Command Mode type <A> - <E> - <U> - <P>.) A screen will appear prompting the administrator for a new password.

- Enter the current password (case sensitive, maximum 16 characters, alphanumeric)
 - Press <Enter> or <Tab>
 - Enter a new password,
 - Press <Enter> or <Tab>
 - To confirm, re-enter the password,
- Press <Enter> to finish or <Tab> to enter the password again.

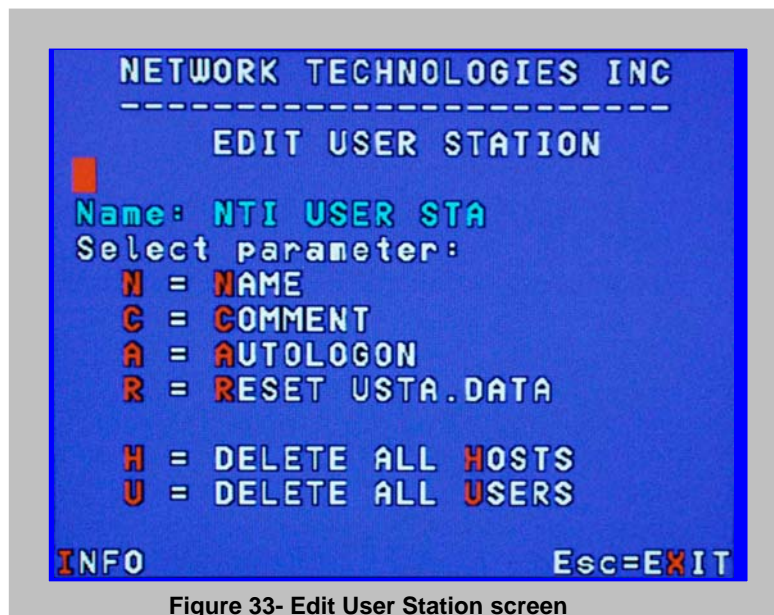


Note: In the event the password is forgotten, contact NTI for instruction on how to reset the password to the default "NTI".

FYI: When the password is changed for user ROOT , it automatically changes for user ADMINISTRATOR as well.

Edit User Station

From the Edit menu (pg 22) press <S> to bring up the Edit User Station menu. (From Command Mode press <A> - <E> - <S>.)



To edit the User Station Info use the commands and enter the desired parameter values as defined in the chart below:

Function	Keystroke	Confirmation Required	Parameter Value
Modify the name	N	No	String, 16 characters max., case sensitive
Modify the Comment Field	C	No	String, 32 characters max., case sensitive
Modify the Autologon to select the user to be automatically logged in at power up	A	No	None. Brings up Select User menu.
Reset User Station internal data Default values will be restored. Use with care, all user configuration settings will be lost.	R	Yes	None
Delete all Host Adapters from the segment	H	Yes	None
Delete all users	U	Yes	None
Display the User Station info	I	No	None
Return to Edit Menu	X or Esc	No	None

Select Autologon User

From the Edit User Station menu, press <A> to bring up the Select User Menu. (From Command Mode type <A> - <E> - <S> - <A>.)



Figure 34- Select user for Autologon

To select which user will be automatically logged in when the User Station is powered up, choose one of the actions listed below:

Function	Description	Keystroke
Enter	Select the user indicated by the selection bar	Enter
Info	Display info on the selected user	I
None	Choose not to have any users logged on at power up. This will bring up the Login screen at power up instead of a user menu.	N
Exit	Return to Edit User Station Menu	X or Esc

User Station Info screen

To display the user station information screen, press <I> from the Edit User Station screen (pg 28). (From Command Mode press <A> - <E> - <S> - <I>.)

This screen displays the following information:

Item	Description
Name	The name of the User Station
Comment	could be used to describe the location of the User Station
Unique ID	a value unique to the segment
Master ID	the segment's Master ID
AutoLogon	If set to a valid user number this user will be automatically logged on at power up
Type/Revision	Product type and ROM version, used for identification purposes
CodeCRC	ROM CRC, use for identification purposes
UstatID	An internal serial number



Figure 35- User Station Info screen

Function	Keystroke
Return to the Edit User Station screen	X or Esc

Idle Timeout

Selects the idle time in minutes. xxx= time in minutes from 1 to 255. (From Command Mode press <A>-<I>.) Use 0 to disable this feature. When the user is idle (no keyboard or mouse activity) for the selected number of minutes, the user will be logged out and have to log back in. The user may either enter a value using the numeric keypad, increment/decrement the value using arrows, or click on the arrows on the screen. Functions for the available keystrokes are shown below.

Function	Keystroke
Increment value by 1	Up arrow
Decrement value by 1	Down Arrow
Increment value by 10	Page Up
Decrement value by 10	Page Down
Minimum value	Home
Maximum value	End
Disable feature (assigns value 0)	D
Save new value	S or Enter
Esc	X or Esc



Figure 36- Idle Timeout screen

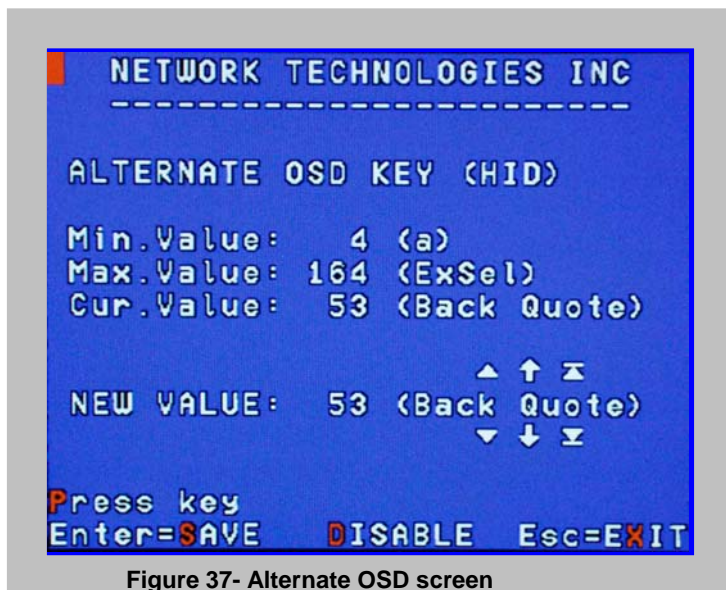
Alternate OSD Key

This function enables the administrator to assign a key in addition to the <`> (accent key) to use with <Ctrl> to enter into OSD Command Mode. The default factory setting for this option is <0> (disabling the option).

To assign an Alternate OSD key press <K> from the Administration Menu. (From Command Mode type <A>-<K>.)

A window will open displaying the current "Cur" value, the range of values (from 4 to 164), and a place for the new value to be assigned. As the administrator changes the value, the corresponding keyboard key will appear next to it in parenthesis. Enter the value "0" to disable the feature.

Function	Keystroke
Press key to enter directly	P <x> x= any key on the keyboard
Increment value by 1	Up arrow
Decrement value by 1	Down Arrow
Increment value by 10	Page Up
Decrement value by 10	Page Down
Insert minimum value	Home
Insert maximum value	End
Save new value	S or Enter
Disable feature (input value 0)	D
Esc	X or Esc



After pressing <S> to save or <D> to disable, the new value will replace the "Cur. Value" as the current value. This function effects all users of the segment..

FYI: The Alternate Command Hot Key does not replace the <`> (accent) key, it just works as an additional way to enter into Command Mode. After setting it, the user can enter into Command Mode either with <Ctrl> + <`> or with <Ctrl> + <Alternative Command Hot Key> combination. To disable it, the administrator should set the new value at 0 or press <D>.

Update Firmware/Bootloader Menu

From the Administration Menu press to get to the Update/Bootloader Menu. (From Command Mode press <A> - .)

The Update/Bootloader Menu is provided to enable the administrator to update the firmware inside the PRIMUX User Station and Host Adapters if needed. The updated code can be downloaded from the NTI website at www.networktechinc.com/kvmswitch-cat5.html. The functions of this menu are as follows:

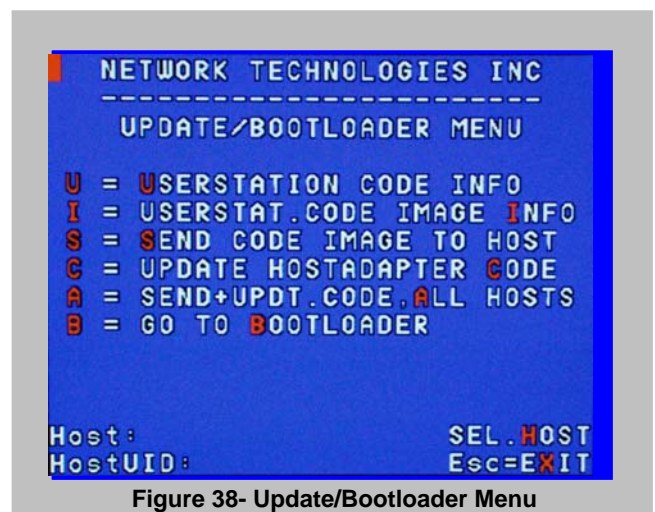
Function	Description	Keystroke	Confirmation Required**
USERSTATION CODE INFO	Displays the internal ROM information of this User Station memory	U	No
USERSTAT.CODE IMAGE INFO	Displays the internal CODE IMAGE info of this User Station This is the code temporarily loaded into the User Station memory	I	No
SEND CODE IMAGE TO HOST	To send the current code image from the User Station memory to the selected Host Adapter Indicated by a solid ON green RJ45 connector LED	S*	No
UPDATE HOST ADAPTER CODE	To send the request to update the Host Adapter code with the code image previously sent to the Host Adapter. Indicated by a solid OFF green RJ45 connector LED	C*	Yes
SEND+UPDT.CODE, ALL HOSTS	To send the current code image from the User Station memory to all powered-ON Host Adapters of the same type. An UPDATE HOST request is then automatically generated	A	Yes
GO TO BOOTLOADER	To leave the OSD menu and activate the Bootloader Program***. A serial terminal must be connected to the "RS232" serial port of the User Station to continue operation	B	Yes
SEL.HOST	Select the Host Adapter. By default, the connected Host Adapter (if any) is selected.	H	Yes
ESC	Return to the Administration menu	X or Esc	--

*A Host Adapter needs to be selected before invoking these commands. To select a Host Adapter, from the Update Bootloader menu press <H> or click on "SEL.HOST". The Select Host Adapter List will appear to allow the user to search for and select the Host Adapter ID to be used with the command.

**Where confirmation is required, the user will be prompted with a "Are you sure? (Y/N)" before acting on the command. Press <Y> to continue, or any other key to cancel. If "Y" is pressed, a blinking "Waiting...." is displayed. A yellow blinking star is displayed to the left of the command selected. To cancel the command, press <Esc>, <X>, or click on "Esc".

***See the instructions included with the updated code downloaded from the NTI website (www.networktechinc.com/kvmswitch-cat5.html) for additional information on the Bootloader Program.

Updated code and instructions for using the features above are included with the downloaded file from the NTI website.



Acquire/Send DDC Info

DDC information allows the CPU to automatically select the optimal resolution for the monitor by receiving, at power up, information from the monitor concerning its resolution specifications.

The DDC information is acquired from the monitor by the PRIMUX. **A monitor with DDC support must be connected to the connector "MONITOR" on the User Station and be powered ON for this to occur.** The DDC information will be sent to every powered Host Adapter to be retrieved by their connected CPU.

Note: *The CPU connected to the Host Adapter must be powered up to receive the DDC information.*

To acquire DDC information from the monitor and send DDC information to all powered Host Adapters, press <D> from the Administration Menu. (From Command Mode type <A>-<D>.) A "waiting" indicator will be displayed until the DDC information transfer is complete.

FYI: *If a new Host Adapter is introduced to the segment, this function will need to be repeated.*

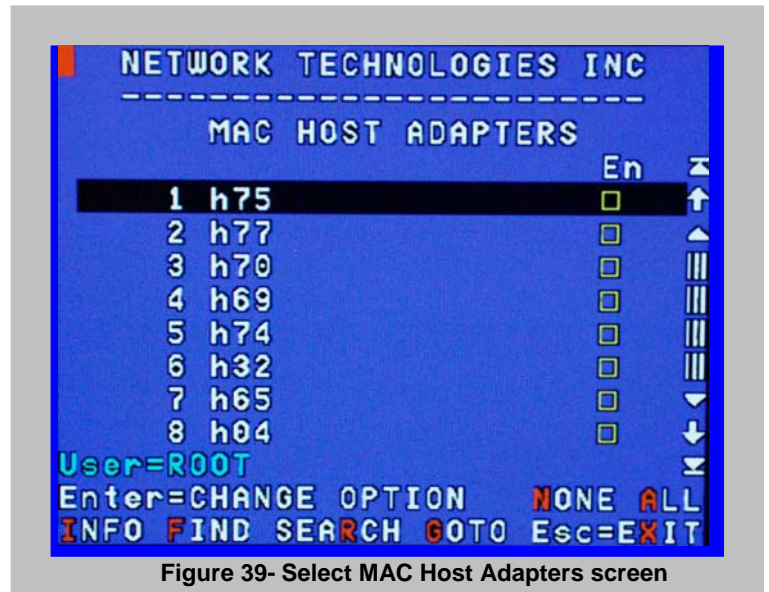
Configure MAC Host Adapters

MAC Ports Configuration menu enables the administrator to select specific ports to be connected to USB MAC CPUs for passing mouse information to the USB MAC CPUs. This is useful when the user wants to use mouse drivers provided by the mouse vendor, which allows the use of programmable functions for each button. Host Adapters should be configured at installation time or whenever necessary. After setting, the configuration is stored in non-volatile memory and will be retrieved whenever the PRIMUX-UZR is power ON. When the Host Adapter is connected to a Windows, SUN, or USB SUN CPU, this configuration SHOULD BE DISABLED. By default, all Host Adapters are configured for connection to non-USB MAC CPUs (Windows and USB SUN).

FYI: *If a Host Adapter is configured as connected to a non- MAC CPU, but is in fact connected to a MAC CPU, the mouse will still work as a generic mouse. No special functions provided by software drivers will be available.*

When the <M> is pressed from the Administration Menu (From Command Mode press <A> - <M>), a screen will appear displaying a list of Host Adapters with boxes to their right.

Function	Description	Keystroke
NONE	Deselect all	N
ALL	Select all	A
INFO	Display info for selected Host Adapter	I
FIND	Find Host Adapter (using name, index number, comments, or ID)	F
SEARCH	Locate Host Adapter by name	R
GOTO	Locate Host Adapter by index	G
	Display Help Page	F1
EXIT	Return to Administration menu	X or Esc



- Unchecked yellow box = the corresponding Host Adapter is **not** configured for MAC CPU
- checked green box = the corresponding Host Adapter **is** configured for MAC CPU

The user can toggle the state of the selected check box by pressing <Spacebar>, <Enter> or clicking the Host Adapter with the mouse. Selected Host Adapters will have a green checked box. Unchecked yellow boxes indicate those Host Adapters not selected for MAC mode

The MAC Host Adapter selection list is automatically saved.

Select Keyboard Language

To enter the Select Keyboard Language menu press <L> from the Administration menu (from Command Mode press <A> - <L>).



Figure 40- Select Keyboard Language menu

The Select Keyboard Language menu enables the user to select a specific language (country code) to be used. Typically only SUN CPUs require a specific country code to be registered at boot up. (For other types of CPUs this feature may have no effect.) A list of available languages is displayed and can be scrolled using the mouse (scroll wheel) and/or <up arrow>, <down arrow>, <Page up>, <Page down>, <Home> and <End> keys.

The language in red text is the currently selected language for the keyboard. A green arrow to the left of the text indicates the language reported by the keyboard.

- To manually program a specific keyboard language, select a language and press <Enter>
- To automatically detect the language of the keyboard, select "AutoDetect" and press <Enter>. The list will advance to the actual detected keyboard language and that language will be programmed.

Some keyboards don't have a country code. In this case the selection will remain in the "AutoDetect" position and the default country code "00" will be programmed in the Host Adapter. If a specific country code is manually programmed, it will be the country code for the Host Adapter, regardless of the actual country code of the connected keyboard. The programmed country code is saved in memory and restored each time the user station is powered-ON. Because the CPUs that use country code (i.e. SUN CPUs) read it at boot time, it is necessary to reboot the CPU(s) after programming the country code.

- Press <X> or <Esc> or click on "Esc=EXIT" to return to the Administration menu.

TECHNICAL SPECIFICATIONS

Video Compatibility	SVGA, XGA, VGA
Video Quality Adjustment	Automatic, for up to 1000 feet of CAT5 cable
Video Coupling	DC
Video Connectors	HD15 male to CPU HD15 female to monitor
Maximum Input/Output Levels	1.45Vp-p (no offset)
Input / Output Impedance	75 ohms
Input Horizontal Frequency Range	15kHz to 130 kHz
Input Vertical Frequency Range	30 Hz to 150 Hz
User Keyboard/Mouse Connectors	Female 6 pin miniDIN Female USB Type A
CPU Keyboard/Mouse Connectors	Male 6 pin miniDIN to device ports for PS/2 CPU Male USB-Type A to device port for USB MAC and USB SUN CPUs Male 8 pin miniDIN to device ports for legacy SUN CPU
Mouse and Keyboard Compatibility	Most PS/2 mice and keyboards Most USB mice and keyboards
CPU Compatibility	PS/2, USB and Legacy SUN, USB MAC
Keyboard and Mouse Current Rating	500mA maximum
Sync Types Supported	Separate and composite TTL Level
Interconnect Cable	CAT 5/5e/6 Solid UTP/STP EIA/TIA 568 B wiring w/ male RJ45 connectors
Host Adapter Power	Powered by CPU
User Station Power	5VDC/2.0A via 120V or 240V at 50 or 60Hz AC Adapter
Host Adapter Size (In.) WxDxH	3.1 x 3.7 x 1
User Station Size (In.) WxDxH	11 x 11 x 1.75

Distances and Resolutions for CAT5/CAT5e and CAT6 Cables

CABLE	DISTANCE (feet)	RESOLUTION
CAT5/CAT5e (UTP)	1000	1024x768 at 60Hz
CAT5/CAT5e (UTP)	700	1024x768 at 60Hz
CAT5/CAT5e (UTP)	500	1280x1024 at 60Hz
CAT5/CAT5e (UTP)	300	1600x1200 at 60Hz
CAT5/CAT5e (UTP)	100	1920x1440 at 60Hz
CAT5/CAT5e (STP)	600	800x600 at 60Hz
CAT5/CAT5e (STP)	500	1024x768 at 60Hz
CAT5/CAT5e (STP)	300	1280x1024 at 60Hz
CAT5/CAT5e (STP)	100	1920x1440 at 60Hz
CAT6 (UTP)	1000	1024x768 at 60Hz
CAT6 (UTP)	800	1024x768 at 60Hz
CAT6 (UTP)	600	1280x1024 at 60Hz
CAT6 (UTP)	500	1280x1024 at 60Hz
CAT6 (UTP)	300	1600x1200 at 60Hz
CAT6 (UTP)	100	1920x1440 at 60Hz

Note: Actual resolution may vary depending upon the construction of the CAT5 cable used.

INTERCONNECTION CABLE WIRING METHOD

The CAT5 connection cable between the remote and local is terminated with RJ45 connectors and must be wired according to the EIA/TIA 568 B industry standard. Wiring is as per the table and drawing below.

Pin	Wire Color	Pair	Function
1	White/Orange	2	T
2	Orange	2	R
3	White/Green	3	T
4	Blue	1	R
5	White/Blue	1	T
6	Green	3	R
7	White/Brown	4	T
8	Brown	4	R
SH	Drain wire	-	Shield

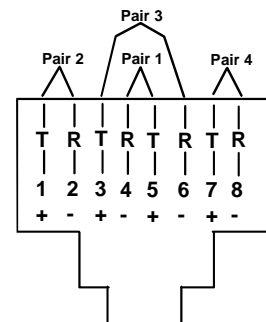


Figure 41- View looking into RJ45 female

NULL MODEM CABLE PINOUTS

PRIMUM to Terminal (9 PIN) null modem cable
(NTI cable part # DINT-xx-FF)

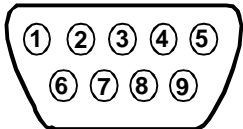
PRIMUM		Signal Direction	TERIMINAL	
9 pin			9 pin	
Function	Pin #		Pin #	Function
RxD	2	←	3	TxD
TxD	3	→	2	RxD
CTS	8	N/C	7	RTS
RTS	7	N/C	8	CTS
DSR	6	N/C	4	DTR
DTR	4	N/C	6	DSR
DCD	1	N/C	1	DCD
SG	5	—	5	SG

N/C= not connected (no cable wire)

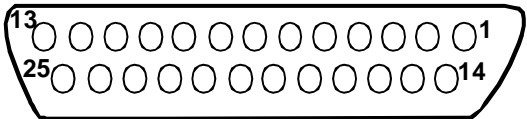
In this cable signals CTS and RTS are connected to each other at the connector ends, and signals DSR, DTR, and DCD are connected to each other at the connector ends.

PRIMUM to Terminal (25 PIN) null modem cable

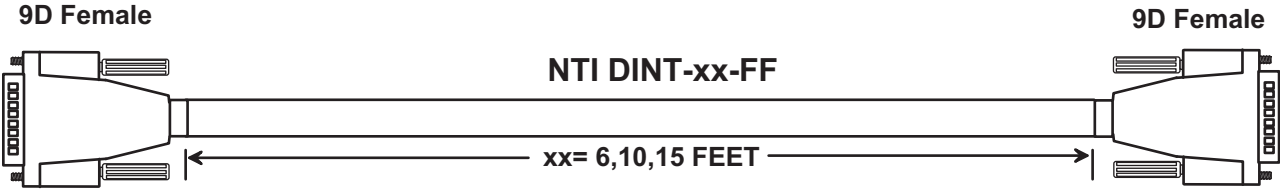
PRIMUM		Signal Direction	TERMINAL	
9 pin			25 pin	
Function	Pin #		Pin #	Function
RxD	2	←	2	TxD
TxD	3	→	3	RxD
CTS	8	N/C	4	RTS
RTS	7	N/C	5	CTS
DSR	6	N/C	20	DTR
DTR	4	N/C	6	DSR
DCD	1	N/C	8	DCD
SG	5	—	7	SG



Mating Face
of 9D
Male Connector



Mating Face
of 25D
Female Connector



Note: Cable length not to exceed 15ft.

MENU QUICK-FIND KEYSTROKE TABLE

Function	Source Page	Keystroke Sequence
Command Mode	13	<Ctrl> + <`>
Connect to specific Host Adapter by number	14	<Ctrl> + <`> - <<Gxx> - <Enter> - <Enter> where xx is the index number of the specific Host Adapter
Activate Scan Mode	15	<Ctrl> + <`> - <S>
Settings Menu	16	<Ctrl> + <`> - <T>
Administration Menu	21	<Ctrl> + <`> - <A>
Find Host Adapter	17	<Ctrl> + <`> - <F>
Host Adapter Info	17	<Ctrl> + <`> - <I>
Return to Command Mode	12	<F10>
OSD Settings Menu	18	<Ctrl> + <`> - <T> - <O>
Host Adapters for scan	19	<Ctrl> + <`> - <T> - <S>
Change scan dwell time	20	<Ctrl> + <`> - <T> - <T>
Video Quality Adjustment	20	<Ctrl> + <`> - <T> - <V>
Edit Menu	22	<Ctrl> + <`> - <A> - <E>
Host Adapter List	22	<Ctrl> + <`> - <A> - <E> - <H>
Edit Host Adapter	23	<Ctrl> + <`> - <A> - <E> - <H> - <E>
User List	24	<Ctrl> + <`> - <A> - <E> - <U>
Edit User	25	<Ctrl> + <`> - <A> - <E> - <U> - <E>
Add New User	26	<Ctrl> + <`> - <A> - <E> - <U> - <N>
Display user info	25	<Ctrl> + <`> - <A> - <E> - <U> - <I>
Edit User Password	27	<Ctrl> + <`> - <A> - <E> - <U> - <E> - <P>
Define user host access	27	<Ctrl> + <`> - <A> - <E> - <U> - <E> - <H>
Change administrator's password	28	<Ctrl> + <`> - <A> - <E> - <U> - <P>
Edit User Station	28	<Ctrl> + <`> - <A> - <E> - <S>
Select Autologon User	29	<Ctrl> + <`> - <A> - <E> - <S> - <A>
User Station Info	30	<Ctrl> + <`> - <A> - <E> - <S> - <I>
Change idle timeout	30	<Ctrl> + <`> - <A> - <I>
Set alternate OSD key	31	<Ctrl> + <`> - <A> - <K>
Update Firmware/Bootloader Menu	32	<Ctrl> + <`> - <A> -
Acquire/Send DDC info	33	<Ctrl> + <`> - <A> - <D>
Configure MAC Host Adapters	33	<Ctrl> + <`> - <A> - <M>
Select keyboard language	34	<Ctrl> + <`> - <A> - <L>

SAFETY AND EMC REGULATORY STATEMENTS

WARNING A WARNING in this manual indicates the potential for serious injury or death.

CAUTION A CAUTION in this manual indicates the potential for damage to the equipment

Do not continue past a WARNING or CAUTION statement until you have read and clearly understand the reason for the potential injury, death, or damage to the equipment and have taken the appropriate action(s).

Servicing

NTI products are not intended to be serviced in the field and contain no user-serviceable parts. In the event repair is needed, all servicing must be performed by factory trained and authorized service personnel. Only those items specifically identified in this manual (if any) may be adjusted by the user of this product and adjusted only as instructed in this manual.

WARRANTY INFORMATION

The warranty period on this product (parts and labor) is one (1) year from the date of purchase. Please contact Network Technologies Inc at **(800) 742-8324** (800-RGB-TECH) or **(330) 562-7070** or visit our website at <http://www.networktechinc.com> for information regarding repairs and/or returns. A return authorization number is required for all repairs/returns.